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Original Communications.

THE TREATMENT OF ACUTE LARYNGO-TRACHEITIS.

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IT will probably be admitted that no disease is more common on the Atlantic seaboard than the deep-seated "throat colds" which have been so variously named and so much more variously treated. Patients, if not practitioners, will also at once admit that the standard "cough syrups," purges, diaphoretics, etc., are anything but satisfactory in their results, and that a more definite and reliable method of treatment is most desirable.

The *cause* of acute laryngo-tracheitis the writer believes to be quite unknown, although the predisposing factors are familiar to almost every one. Exposure of any kind is certainly *not* in itself sufficient to produce the disease, as it is a matter of common experience that severe attacks may occur without the slightest assignable cause, or that great exposure under the worst conditions may not be followed by any discomfort. All that can be said at present is that the etiology of laryngo-tracheitis is that of a general "cold," the onset of which may, in certain cases, be determined by dampness or exposure, but which depends either upon a def-

inite contagion or upon a combination of atmospheric conditions too elusive to have yet been recorded.

As is well known, the disease is most common during the spring and autumn months, but it occurs nearly as often in midwinter, and cases were numerous in this city during the past June and July. The disease is largely epidemic in character, large numbers of persons usually being affected at the same time; this is constantly noted in private practice and clinics where the naso-larynx is under special observation, acute cases always applying in large groups. Whether contagion has anything to do with this indisputable fact the writer is not prepared to state, although it is his belief that a certain proportion of cases of acute inflammation of the upper respiratory tract are communicable by close contact.

Among the predisposing factors of acute tracheitis the *peculiar vulnerability* sometimes called the "catarrhal tendency" plays the most important part. Chronic disease of the upper respiratory tract, if of slow and constant type, seems as often to have a *protecting* as an exciting influence, and the peculiar sensitiveness may exist without any marked lesions, the condition being essentially a local angio-neurosis, usually associated with "neurasthenia," and frequently dependent on inherited gout.

The clinical history of an attack of laryngo-tracheitis is known to all dwellers on our North Atlantic coast and lake regions, few persons reaching middle age without one or many attacks. Irregularity of onset is characteristic of the disease; it may begin as an ordinary acute coryza, as a pharyngitis, or may start in the larynx and trachea *ab initio*. It may be preceded by malaise and febrile prodromata for one or more days before the local symptoms are prominent, or may begin without warning as a violent local inflammation, affecting the general health only secondarily, if at all. A typical case usually commences as an acute nasal inflammation, characterized by stenosis, hypersecretion, local soreness, and frontal headache from extension of swelling to the sinuses. There is usually a rise of from one to three degrees in temperature, with corresponding malaise. From a few hours to several days after the initial coryza laryngeal tenderness, slight dry cough, and hoarseness or aphonia appear as a result of extension to the larynx, difficult deglutition and dyspnœa also occasionally occurring in severe cases. Involvement of the trachea is shown by sternal pain, more difficult breathing, and increased painful cough, and general wretchedness is marked in most cases. In from one to three days the cough becomes "loose" and expectoration abundant, consisting of yellowish or gray muco-pus, containing epithelium, white blood, or pus-cells, and sometimes blood. Resolution results in from one to many weeks, the symptoms gradually subsiding, the sputum becoming simply mucoid, and the general strength rapidly reaching its previous level. In less favorable cases the disease becomes subacute or chronic in character, and the symptoms persist for an indefinite period. Acute or chronic bronchitis are also common sequels of this disease; but although the primary bronchi are probably always affected, *typical bronchitis* is not the rule in average cases of acute laryngo-tracheitis.

The diagnosis, while usually easy from the symptoms presented, can only be certainly established by the reflecting-mirror and laryngoscope. In early stages the lesions may be largely confined to the nose or pharynx, acute coryza presenting the usual appearances of blood-red congestion and marked boggy swelling of the turbinated tissues; acute pharyngitis, the bright-red blush of the region of the half-arches and uvula characteristic of that disease. As the inflammatory process extends downward, *blush* of any or all the regions of the larynx becomes readily recognizable by the mirror. The color varies with the intensity of the disease, in severe cases being a blood hue. Hemorrhages into the membrane or through it into the larynx are not very uncommon. Swelling is not pronounced, except in very severe cases; in such the cords may be wholly obscured by the gorged ventricular bands; shallow, raw erosions are quite common in such examples. The tracheal membrane, if it can be seen, will be found to be similarly congested and swollen, and in later stages is often flecked with adherent muco-pus. If the voice has been much used during the attack, the edges of the cords often become somewhat raw and eroded, and it is here that minute ecchymoses most frequently appear. After exudation has become established, the red coloration becomes less vivid, and the mucous membrane is flecked with tenacious exudate, often largely interfering with a satisfactory view of the larynx. As convalescence becomes established, the redness and swelling disappear, and with them the muco-purulent exudation, the erosions heal over, and the general mucous membrane, in favorable cases, rapidly returns to a condition of normality.

Pathologically the process is a superficial one in almost all cases, not producing any marked changes in the walls of the larynx or trachea

beneath the mucous membrane. The first change consists of an acute engorgement of the membrane, the functions of the mucous glands being thereby arrested, causing the "dry stage" of the disease. As the tissue gradually recovers itself, the glands become abnormally active, and produce an increased quantity of mucus. The superficial epithelial cells are shed in large numbers, the deeper layers proliferating to make up the loss. Numerous leucocytes ("inflammatory cells") crowd the membrane and appear on the surface as pus-cells, and are expectorated with the abundant mucus. Sometimes the epithelial desquamation is so rapid that erosions are formed, which, as noted above, are recognizable with the laryngoscope during life. If early resolution occurs, the leucocytes disappear, the capillaries contract to their normal lumen, and the tissue rapidly returns to normality; but if the inflammation has been intense or prolonged, the white blood-cells undergo organization, forming lymphoid ("granulation") tissue, resulting in the inflammatory masses so common in the throat. The capillaries also may remain permanently dilated, and the epithelial layer may be so affected that proliferative and desquamative processes may persist for an indefinite time, *chronic* laryngitis, in short, resulting.

Perhaps in few acute diseases is the prognosis so modified by the treatment selected as in that under consideration. Neglected or hap-hazardly treated "colds" may and do run on for an indefinite time, impairing or greatly endangering the ears, voice, and general health, and frequently lighting up grave conditions in the lower bronchi or pulmonary parenchyma. Only in the very vigorous, or in those whose surroundings are especially favorable, can a typical attack of laryngo-tracheitis be expected to run a favorable course without sequelæ, unless systematically and carefully treated throughout its course. On the other hand, the severest cases, involving the secondary bronchi, can be effectually controlled in nearly all instances, the patient at once relieved, complications avoided, and all symptoms removed in from one to four weeks of treatment.

The writer was at one time convinced that typical cases of acute laryngo-tracheitis could be *aborted* if properly treated at the commencement of the attack. Later and more extensive experience has argued against this desirable possibility; but it is quite certain that the severity of the disease may be greatly mitigated, and its duration shortened at least one-half, by proper management during the first twenty-four hours of its course.

If seen before laryngeal hyperæmia has become marked, the disease can often be made to run a mild course of three or four days by the use of well-selected *sprays* applied to the whole upper respiratory tract. Beginning with the nasal chambers, a solution of boric acid, borate of sodium, and chloride of sodium in rose-water gives the best results, the cavities being thoroughly but gently sprayed. An instillation of a few drops of a five-per-cent. solution of cocaine may first be necessary to clear the chambers, and in some cases contributes to the good effects of the treatment. As a pharyngo-laryngeal spray, a saturated solution of potassium chlorate, to each ounce of which one or two grains of crystal carbolic acid has been added, is by far the best *routine* application; in certain selected cases watery solutions of extract of hyoscyamus, salicylate of sodium, and alum are sometimes to be preferred. An air-pressure of from fifteen to twenty pounds, and an atomizer throwing a very fine, even spray give the best results; the writer commonly uses a long, straight instrument, holding the tip just within the patient's mouth, and instructing him to breathe deeply, and to signal when he desires to rest or expectorate. The vaporization may be continued, with brief intervals of rest, for from three to eight minutes, after which the whole upper respiratory tract should be freely coated with some bland oil, such as albolene, containing a percentage (three to fifteen grains to the ounce) of menthol, oil of eucalyptus, or pine-needle oil, the nose, pharynx, and larynx being sprayed in turn, the patient breathing deeply, so as to carry the oil to the trachea and bronchi. If the individual can rest both body and voice for a few days, nothing more may be required; the time-honored laxative is occasionally expedient, and a hot whiskey punch, with a moderate dose of quinine, or a small one of morphine, may be ordered to be taken at bedtime. A mustard-plaster to the tracheal region is a useful adjunct, and a hot foot-bath is often valuable. Purgatives and active diaphoretics are, in the writer's experience, far more likely to do harm than good, and are never used; pilocarpine has, however, been highly lauded as an aborting agent in this disease. Cocaine is, in the writer's opinion, altogether unsuited for *repeated* use in this disease; a certain author, however, has advocated the employment of *a ten-per-cent. solution every twenty minutes* until relief is secured as an aborting agent. Without venturing to reflect upon the experience of any one else, the present contributor is convinced that such a treatment used by himself would produce most alarming results in many cases, and might be fatal in not a

few. As the primary contracting effect of the alkaloid is always followed, after repeated applications, by excessive vaso-motor relaxation, amounting almost to paresis, such a therapeutic measure for an active hyperæmia seems to be the worst possible that could be devised. The toxic constitutional effects of the drug would alone render its employment in such quantities most hazardous, even were the local effects beneficial.

After laryngo-tracheal congestion has become decided, the disease will run its usual course as to stages, whatever treatment be used; but the duration of the attack can still be decidedly shortened, and the severity of the symptoms much relieved. Sprays have the same sedative action as when used in the earlier stages, and similar formulas may be employed. Astringents are valuable, and are best used in the Oliver's vaporizer, a 15-grain solution of alum with carbolic acid, glycerin, and rose-water being a favorite with the writer for use with this apparatus. High pressures—up to twenty-five pounds—give the best results, and the *séance* should occupy from ten to fifteen minutes, the patient breathing the vapor deeply into the lungs. If cough and pain are prominent and the tracheal congestion marked, hot vapor inhalations for home use will be found most soothing and beneficial. Compound tincture of benzoin is the most useful drug at our command for this purpose, to which may be added menthol, creosote, eucalyptol, or terebene, the first named being purely sedative, the others more or less stimulating in character. Home-made inhalers are not of much value, and the old-fashioned funnel-and-cup arrangement is wholly "homœopathic" and absurd. A proper instrument is an air-tight bottle or can, through the cork or lid of which extend two tubes of a quarter of an inch calibre; one should extend just through the stopper, the second to the bottom of the vessel. For use, the apparatus is half filled with boiling water, a teaspoonful of the benzoin tincture added, and the cork tightly placed. The short tube, which should be bent into a convenient curve, is then taken between the lips, and the patient inspires deeply, the outer air bubbling through the whole mass of fluid and reaching the throat thoroughly charged with the medicament. Used with reasonable care, there is no danger of scalding the mouth, and the apparatus is simple enough to be employed by the most ignorant. It may be used several times a day, and is in almost all cases most grateful to the patient and most valuable in reducing tracheal congestion and shortening the course of the disease.

Internal medication is of less value than proper local treatment during the earlier stages of acute tracheitis, and in the writer's practice is largely limited to bromides, preparations of lactucarium, coca-wine, and quinine, the special indications for each of which are the constitutional rather than the local condition of the patient.

The use of cardiac depressants and vascular poisons, still so largely used in this disease, is considered worse than useless by the writer. Not only do they absolutely fail to give relief to local symptoms, but they increase the already intense tendency to take "fresh cold," and weaken the heart, which, in catarrhal subjects and city-bred Americans generally, is already below par. Convalescence has always seemed much retarded by such treatment, and the dangers of complications certainly not decreased. Of course this does not apply to cases in which the fever is of more importance than the local lesions, small doses of aconite being *occasionally* of the greatest value in such instances, especially in children. Instead of cardiac depressants, many patients need stimulation from the beginning of the disease, alcohol, in the form of milk-punch, being the most generally serviceable.

Counter-irritation is useful in all cases in which the trachea is much involved; tincture of iodine, freely painted over the sternal region once daily as many days as it can be tolerated, is especially valuable. In young children, or when the discoloration of the iodine is objected to, oil of amber, diluted, if necessary, and rubbed over the front of the chest with vigorous friction, is to be preferred. In more acute cases, involving the bronchi, large mustard-plasters or turpentine stupes act more rapidly. In all subjects the chest must be carefully protected for weeks after the commencement of the attack, the wearing of evening dress by ladies absolutely forbidden, and reckless bathing interdicted; the oil inunctions may also be continued for a month or more with advantage.

Of much importance is the patient's care of himself during the attack. Doubtless confinement to the house is the best treatment, but this can seldom be enforced, and, if there is no elevation of bodily temperature and the weather be pleasant, is of less moment than is often supposed. Night-air is, however, very prejudicial, as is very damp or windy weather, and under such conditions a case of tracheitis always runs grave risks of serious complications by exposure. In mild cases of laryngitis, moderate use of the voice is rather beneficial than otherwise, seeming to prevent infiltration and consequent loss of voice, the throat noticeably "limbering up"

with use. But in severe attacks, where aphonia and pain are prominent symptoms, the voice should be used as little as possible, and all loud talking or public speaking absolutely avoided until it has regained its normal resonance.

The treatment of advanced cases of acute laryngo-tracheitis, where the disease has persisted for a number of weeks, and where cough and purulent expectoration continue, should be more stimulating in character than in the earlier stages. Sprays and vapor inhalations are equally as valuable as at the beginning of the attack, but of course a much slower convalescence is to be expected, and the more stimulating remedies should be employed, oil of eucalyptus, ethyl iodide, and alum being especially useful. All gargles, brushes, and probangs are at best useless in this disease, and all laryngeal *powders* are absolutely avoided in the writer's practice. Judging from the experience of many intelligent patients, not a few of them medical men, such applications act invariably as intense irritants, and always aggravate the symptoms and prolong the disease; their still extensive use in acute cases is a remnant of the dark ages of laryngology. The use of nitrate of silver in acute inflammation of the larynx or trachea, as has been advised by eminent writers, has not yielded good results in the writer's hands, and was years ago abandoned by him, and swabbing the trachea with a 60-grain solution seems more likely to cure the disease by ending the patient's life than by any slower process.

Internally, chloride of ammonium, which may be combined with bromides or with any of the stimulating expectorants, is decidedly the most useful drug in these subchronic cases; strychnine ranks next, and coca-wine and general tonics are frequently necessary. Persistent counter-irritation is expedient, and, as convalescence becomes established, a large share of fresh air and exercise is essential. A few cases, generally members of phthisical families, may continue to cough and expectorate at intervals for months, and if these symptoms are combined with progressive loss of weight and strength, even though slight in amount, the greatest care, or, preferably, immediate removal to a warmer climate, is of the first importance. Such cases, being essentially chronic in character, demand special treatment, which is too extensive a subject to discuss in the present article.

Serious complications are not frequent in acute laryngo-tracheitis, œdema of the larynx, spasmodic dyspnœa, and extension of the inflammatory process to the smaller bronchi and pulmonary alveoli occurring in a very small proportion of cases only.

Œdema can usually be controlled by astringent inhalations, but urgent cases are perhaps best treated by immediate scarification. The latter operation is both difficult and dangerous, hardly less so than tracheotomy, unless done by a trained expert with suitable appliances at hand. Scarification of the *external* edges of the aryteno-epiglottic folds is less likely to be followed by excessive hemorrhage, or to flood the larynx, than when their inner surfaces are incised. The lightly-given directions in many text-books are most crude and misleading, to a laryngologist often grotesque, and it is the opinion of the present writer that tracheotomy is to be preferred in cases in which the practitioner is more familiar with general surgery than with the larynx, and in which the urgent symptoms demand immediate relief.

Spasmodic dyspnœa can usually be relieved by hot inhalations, the steam atomizer, properly used, being especially valuable. Fumigation with the various stramonium and hyoscyamus pastilles and papers is often of great use; a hypodermic injection of morphine and atropine is usually followed by prompt relief. Occurring in children, it passes under the name of *croup*, and demands treatment too special in character to be described here.

Extension to the lungs occurs only in feeble patients, or in those enfeebled by prolonged illness, or after great exposure during the earlier stages of the disease. It can be prevented in almost all cases by early and proper treatment. Deep-seated bronchitis or catarrhal pneumonia call for the approved treatment for those diseases in detail. A long list of chronic conditions—nasal, aural, laryngeal, and pulmonary—may be directly lighted up by an attack of acute laryngo-tracheitis, but these occur too irregularly to be considered as usual complications of the disease. Nearly all may be prevented by rational therapeutics during the early stages of the primary affection.

THE RADICAL CURE OF HYDROCELE BY INCISION, APPLICATION OF AN IRRITANT, AND DRAINAGE.

By W. Joseph Hearn, M.D.,
Surgeon to the Philadelphia and the Jefferson Medical College Hospitals.

FOR many years the treatment suggested for the radical cure of hydrocele of the cord was so unsatisfactory that I was led to adopt the mode of treatment suggested by the title of this article. The first case was a boy ten years old, in the wards of the Jefferson College Hospital.

The cyst was almost behind the cord. There was great danger of wounding some of the vessels should I attempt to puncture the cyst. I incised the tissues overlying the cyst-wall, and treated the case in the manner detailed below. The boy was out of bed on the second day. From the satisfactory results following the operation on encysted hydrocele, I was led to adopt the same treatment for the tunica vaginalis. I usually employ the following method: After the parts are shaved and thoroughly cleansed with Johnson's etheral soap and washed with a hot bichloride solution, I freeze the line of incision at the most dependent part of the sac. For freezing I use the chloride of ethyl, which, by the way, is the most reliable and satisfactory agent of which I know.

I then, through the frozen line, make a free incision into the sac. Catching the edges of the sac with forceps, or needles armed with ligatures, that I may hold the sac up and open, I empty and thoroughly dry it out with sterilized cotton or gauze. Then with cotton or gauze saturated with pure carbolic acid (the crystals liquefied with heat) I mop the entire cavity of the sac. A small tent of iodoform gauze is inserted at the lower angle of the incision for capillary drainage. The tent is removed in from twenty-four to forty-eight hours. Both the sac and overlying skin are closed with catgut sutures, within one-half inch of the lower angle. An incision one inch long gives every facility for drying out the cavity. The line of incision is covered with aristol or iodoform, and then covered with antiseptic dressings and rubber dam. Purulent inflammation never occurs if strict antisepsis has been observed.

Where the patient is timid or prefers it, ether can be used with great satisfaction, but it is not necessary. There is no more pain, and the recovery is just as rapid as in the carbolic acid injections, which I have always used and preferred previous to this mode of treatment.

The claims of this mode of treatment over injection is that it rarely fails in proper cases. We all know that the injections often do fail, even in hydrocele with thin sacs. Its success is due to drainage. The fluid necessarily left in the sac after tapping and injection often coagulates and prevents the complete collapse of the sac. This coagulated material I have often found in the sac of hydroceles that had never been operated upon. With the operation of incision it can always be removed. It is not claimed that this mode of procedure can take the place of partial excision or Volkman's operation in those cases where the sac is covered with calcareous plates or so thickened that the walls cannot collapse. It is adapted only to sacs with thin walls, whether they be translucent or not. It is much more certain than injection, and a more benign operation, and results in a more rapid recovery than attends a partial excision of the sac. Should the patient be under the influence of an anæsthetic, and the sac be found thicker than anticipated, the operation can be extended to partial excision, as I was compelled to do in one case.

SALICYLATES IN THE TREATMENT OF PLEURISY WITH EFFUSION.

A Paper read before the Washtenaw County Medical Society at a Meeting in Ypsilanti, Mich., January 27, 1893.

By George Dock, M.D.,
Professor of Theory and Practice of Medicine in the University of Michigan.

IN the treatment of pleurisy with effusion the tendency has been to look with growing favor on the operative removal of the fluid as the safest, surest, and most rapid method. Next to this, probably, but far less frequently used, is the method of Hay, which is effective, but by no means pleasant, and sometimes hard to put in practice. But in the last few years testimony has accumulated in regard to a method of medicinal treatment which deserves a wider use than has been given it. I refer to the treatment by salicylates; and as the evidence regarding this method does not seem to be fully appreciated, I must ask your patience during a recital of the main facts.

To illustrate the want of appreciation, I have only to recall to your minds articles on the treatment of pleurisy, in which the salicylates are either not mentioned at all or are dismissed, as in the following (Garland, in the *Climatologist*, vol. i., No. 4, p. 245): "Drzewioski [*sic*] extols salicylic acid and salol in pleurisy, on the ground that this is a rheumatic affection, and he thinks that he has obtained very satisfactory results with these drugs."

In the excellent chapter on pleurisy in Lyman's "Practice of Medicine," the author, after speaking of pilocarpine, says, "In like manner salicylic acid or salicylate of sodium, in 10-grain doses every half-hour until a drachm has been taken every day, often produces excellent results, though, in consequence of the danger of cardiac depression, it is never safe to leave the administration of such remedies in the hands of inexperienced persons."

Strümpell, who, in the sixth edition of his "Lehrbuch," spoke of salicylate of sodium

only as a diaphoretic, in the seventh edition (Bd. i. p. 426) speaks of it as a diuretic, and gives it the first place among the diuretics to be used in pleurisy, "because in pleurisy a specific action is attributed to it. This is said to be true especially in those cases in which a rheumatic origin of the pleurisy may perhaps be accepted. Moreover, salicylate of sodium certainly has a direct diuretic effect."

My own observations have been limited. I had long settled down to the use of the aspirator, or, strictly speaking, a siphon trocar, and occasional experiments with concentrated salines or other drugs did not tend to induce me to adopt any other in place of the instrumental method when spontaneous absorption did not occur. From my short experience, however, and from the study of the literature that led me to make, I think I am quite justified in calling attention to the value of the salicylates in pleurisy.

It is perhaps due less to an admirable and wise conservatism than to other causes that Aufrecht's recommendation (in his "Path. Mittheilungen," Heft ii. p. 73, Magdeburg, 1883) of salicylic acid in pleurisy received so cool a reception.

Following this, Gasparini wrote on the subject (*Gazz. Med. Ital.-Lomb.*, 1885, 8. s. vii. 112). I have not been able to consult his article.

In 1886, Aufrecht again called attention to the subject (*Berl. Klin. Woch.*, 1886, No. 10, p. 151). Aufrecht gave salicylic acid in five or six doses of a gramme each daily, keeping the patient in bed. In two or three days the quantity was reduced to 4 or 3 grammes, and it was continued eight or ten days. Aufrecht said he was far from asserting that a prompt result followed in all cases. But from his observations he concluded that with salicylate treatment in some cases of pleurisy a very rapid cure occurs, and that the average duration of treatment is much less than with the usual methods.

Since then Drzewiecki (*Medycyna*, Nos. 44, 45, and 46, 1887, and *New York Medical Record*, 1888, ii. 205), Herz (*Wien. Med. Wochenschr.*, 1889, xxxix. 1084), Eugster (*D. Arch. f. kl. Med.*, Bd. xlv. p. 441), Stiller (*Orvosi Hetilap*, 1889, No. 52, and *Therap. Monatshefte*, 1890, p. 139), Mercandino (*Riforma Med.*, 1890, vi. 1730), Bieganski (*Nowiny lekarskie*, No. 11, 1890, and *Virchow-Hirsch's Jahresberichte*), Tetz (*Medycyna*, 1890, and Virchow-Hirsch; also full details in *Therap. Monatsschr.*, July, 1890), Deri, who seems not to have been aware of Aufrecht's work, but discovered the value of sodium salicylate by accident in 1885, and continued to use it in pleurisy (*Pester Med.-Chir. Presse*, 1891, No. 26, and *Therap. Monatshefte*, 1891, 447), Strizover (*Meditz. Obozren*, No. 15, 1891, and *Brit. Med. Journ. Sup.*, October 24, 1891), Edgren (*Hygiea*, 1891, 528), Churton (*Int. Clinics*, October, 1891, 84), and Köster (*Therap. Monatshefte*, 1892, p. 117) have reported favorable results, some of them on large numbers of cases.

In the mean time, Huber, whose work I shall speak of later, had also used the remedy with positive benefit.

In an interesting article in *La Semaine Médicale*, No. 4, 1892, it is said that Hayem, Talamon, and Albert Robin use and advise the salicylic method, though Sée said he had not seen the rapid and decisive action which has been ascribed to it (*vide* also *La Sem. Méd.*, No. 19, Avril 20, 1892, p. 146, in which Sée denies the benefit of any internal medication in pleurisy).

Of the articles cited I have been able to see all but that of Mercandino, either in the original or in the abstracts to which references are given. Although it might be interesting to give extracts from them, I shall ask you to accept merely the results of my reading.*

The number of cases subjected to the treatment cannot be ascertained, as some reporters do not give numbers, but merely say they have treated "many," or during a long period, etc. Out of seven reports, I gather a total of ninety-one cases. But in all the reports there is a notable unanimity, and the articles having the greatest fulness of detail leave no doubt as to the value of the method. I do not mean to say that the results were uniformly rapid and favorable, but the moderate language of Aufrecht is reiterated by others in equally candid words.

Köster (*loc. cit.*), one of the latest observers, as the result of an experience with the method in thirty-two cases, says that "the total effect is that the remedy does good," though admitting that its action is not constant. "Notwithstanding the latter limitation, the remedy deserves a trial in all cases of primary exudative pleurisy, especially so as it is comparatively safe. It should also be tried in secondary pleurisy, and may be tried in peritonitis and pericarditis."

* Since writing this paper I find the following references, but have not been able to consult the originals: Cecchini, *Riv. Gen. Ital. di Clin. Med.*, 1891, iii. 418; also *Lavori d. Cong. di Med. Int.*, Milan, 1891, iv. 426–428; Georges Billard, "Action de la médication salicylique dans le traitement des pleurisies de nature séreuse." Paris, 1891.

A careful study of Köster's paper strengthens his statements. Out of thirty-two cases, all of more than moderate severity, and some inveterate and severe, aspiration had to be resorted to only three times, on account of threatening symptoms or non-absorption.

The following cases of my own illustrate the favorable action of the remedy:

CASE I.—G. B., laborer, aged twenty-six. One maternal and one paternal aunt died of tuberculosis; otherwise the family history is good. Three years before admission patient had bronchitis, lasting all winter. Tuberculosis was suspected, but he recovered entirely. In December, 1891, had influenza, and soon after pleuritic pains and dyspnœa began. The latter was so severe that patient could not work. There was also palpitation of heart, constant dry cough, and slight fever. During the last three weeks before admission all symptoms except pain had been worse. Sudden movements of the body caused sharp pain in liver region. There were occasional night-sweats and slight chills.

B. was admitted to the University Hospital April 18, 1892. From the notes I quote: Man of large frame, with cyanosis of extremities and face. Thorax well formed; expansion almost absent over right side. Right side looks larger than left, but measures the same; the interspaces flattened out. Absolute dulness in front on the right side from third rib downward; above that, Skodaic resonance. In the back, dulness from the level of the sixth dorsal spine. Vocal fremitus absent over area of dulness. Liver dulness extends one inch beyond margin of ribs in right mammillary line. Breathing slightly blowing, but faint above third rib right; absent below. Puerile respiration left. Baccelli's sign not present. Diffuse pulsation in cardiac region, extending one inch beyond nipple; weaker or absent towards the end of inspiration; apex-beat strongest in fifth interspace, eleven centimetres from middle line. Heart-sounds vary in force; pulmonary second sound accentuated. Radial pulse 112, irregular, small; tension reduced. Respiration in horizontal position 24. Patient cannot walk length of ward without causing palpitation of heart and intense dyspnœa; in fact, must stop for breath. Aspiration by hypodermic syringe in right fifth interspace gave a slightly-turbid fluid containing leucocytes and red blood-corpuscles in moderate quantity.

Patient was left without medicine for two days, but with milk in addition to his diet. The urine of the second day measured 820 cubic centimetres. He was then given sodium salicylate, 5 grains every four hours. The urine on the following days measured as follows: 1026, 810, 980 (milk stopped), 1100, 1100, 1000, 1150, 920, 960, 1200, 1000, 880, 860, 950, 1000, 1200, 1050 c.cm.

During the first four days the temperature rose above 100° F., once 101.2° F., and remained elevated a large part of the day. After that it never reached 100° F., and usually was between 98° and 99° F. The subjective symptoms rapidly subsided. The upper border of the dull area fell gradually, friction-sounds became audible between the third and fifth ribs, and breathing could be heard in the same area. At one time œgophony could be heard in the back above the dull area. By the end of the second week the apex of the heart had receded more than four centimetres to the right. Friction audible all over lower part of right lung area. By the fourteenth day the patient could walk a mile in the open air without subjective dyspnœa. At this time fluid withdrawn by the hypodermic syringe gave the characteristic violet color with chloride of iron.

The patient left on the twentieth day, feeling well. There was partial dulness below the fifth interspace in the mammillary line, and the fremitus was weak, as were the breath-sounds, though the exudate was probably absorbed. The patient sent word early in the fall that he had continued well.

CASE II.—J. O., farmer, aged twenty-four. Family history and previous personal history good. In February, 1892, "caught cold;" had severe pain in left side, increased by deep breathing, fever, and cough, which kept him in bed five weeks.

Admitted to University Hospital June 1, 1892. On the afternoon of admission patient had a hard chill, with temperature of 102° F. Complained of pain in back and right side. There were friction-sounds over the right side. By the fifth day the line of dulness had extended to the fifth interspace in the right mammillary line, with constant distressing cough and pain on deep breathing.

Phenacetin was given in 2½-grain doses every two hours, but as it did not relieve the pain, codeine was given in small doses. The symptoms continued, and clear serous fluid was removed by the hypodermic syringe in the fifth interspace. On June 15 the patient was given salol, in 10-grain doses every two hours. Before this the urine had averaged during fourteen days 820 cubic centimetres per day, or, including the 15th, 818 cubic centimetres. After that it averaged during six days 1116 cubic centimetres, or, excluding the 15th, 1195 cubic

centimetres for five days. There was a rapid subsidence of all symptoms, and the patient left June 20. He wrote some months later, saying he had been well since leaving the hospital.

In regard to these cases, as in those reported by others, I do not forget the rapid spontaneous absorption of pleural effusions that sometimes takes place. But in Case I. no effort at spontaneous absorption had taken place, nor had active catharsis before admission relieved the condition to any appreciable extent.

In Case II. the disease was not of such long duration, nor so extensive; but here, too, the inference seems fair that it was the diuretic action of the drug that was influential in removing the fluid.

This brings up the question of the mode of action of the salicylates in pleurisy. The references to Strümpell already given are instructive, as showing how our views change. Although the diuretic action of these drugs had been observed long before, it was not until the painstaking experimental clinical work of Huber, in Eichhorst's clinic (*Deutsches Archiv für klin. Med.*, Bd. xli. p. 129), that such an action was recognized as prominent or important.

Huber found that pleurisy with effusion was one of the conditions in which the diuretic action of the drugs in question was most marked.

Not only was this so, but the diaphoretic action on which older writers laid stress, and on account of which Eichhorst himself thought sodium salicylate had been useful in pleural effusion ("Handb. d. spec. Path. u. Ther.," 2d ed., i. 505), was scarely observed. Careful estimation of the loss of weight by perspiration and by the lungs showed that that loss was not materially influenced by salicylic acid one way or the other, and no notable diaphoretic action was observed in any of the fourteen cases so studied. Eugster (*loc. cit.*), out of thirteen cases, found sweating in only one, but other writers quoted in this paper speak of diaphoresis as occurring.

Huber also found that if the drug were given daily for several days, the diuresis gradually lessened in some cases, though the average excretion was larger. In other cases a steady rise took place. In one case, in a *potator* with œdema, excessive diuresis continued after stopping the administration of the remedy. In pleurisy, as in rheumatism, the diuretic action of salicylic acid was unaffected by the existence of fever.

The diuretic action of the remedy is mentioned by many of the writers named above, but many of them assert that, in addition to that, salicylates have in pleurisy a peculiar or, as some say, specific action. A discussion on this point is closely connected with that of the etiology of the disease, since some of the authors named claim that the rapid curative action of the remedy demonstrates the rheumatic nature of the cases. With this reasoning I cannot agree. I do not think we can gather etiological or nosological conclusions from the action of remedies in a disease like pleurisy, and until we have a much clearer and more sharply defined conception of rheumatism than we have now, we gain nothing by speaking of the ordinary pleurisies as rheumatic. I exclude, of course, pleurisies complicating rheumatism, be their proportion large or small. But whatever be the cause or causes of so-called idiopathic pleurisy, it is possible there are some forms of the disease the causes of which are affected by salicylic acid or its salts, and from that point of view the presence of the acid in the effusion, found by my assistant, Dr. A. S. Warthin, is of great interest.

The experience so far gathered indicates that all pleurisies with serous effusion are proper for the administration of salicylates. But besides these, they may be used with advantage in dry pleurisy (Herz, *loc. cit.*), reducing fever and relieving pain. Köster (*loc. cit.*) also speaks favorably of sodium salicylate in cases in which friction is the only sign. Even in cases with tuberculosis in the lungs (Huber, *loc. cit.*), or in cases with hemorrhagic exudate (Köster, *loc. cit.*), the action of salicylates is sometimes favorable, and, in fact, Tetz (*Therap. Monatshefte*, July, 1890) claims that all secondary pleurisies are amenable to the treatment. I am not in favor of using salicylates or any other drug to distintinguish between effusions of various characters. The hypodermic needle is the proper instrument for that purpose, and should always be used, the proper precautions being observed.

One great advantage of the salicylic treatment, as has been emphasized by various writers, is that it can be used early. One need not wait until fever has subsided, or until an effusion has reached its maximum extent, but as soon as the diagnosis of pleurisy is made the drug may be administered, provided there is no contraindication on the part of the stomach or kidneys.

In regard to dose and mode of administration, I have already mentioned the method of Aufrecht.

Köster used the acid and the sodium salt alternately, and found no difference in their action, but in general, as one would expect, the

patients took the salt better than the acid. Köster gave 1.5 grammes of sodium salicylate three or four times a day.

Drzewiecki also used the sodium salt in 2-drachm doses daily, giving a tablespoonful of a five-per-cent. solution every hour until signs of intoxication appeared, and then every two hours. He never saw collapse or cardiac weakness, but buzzing in the ears, anorexia, and repugnance to the remedy were constantly present, though they could be diminished by giving in milk. He afterwards used salol in 8- to 12-gramme doses daily, and found it better than the sodium salt in every respect.

Stiller and Strizover used smaller doses,—3 to 4 grammes of sodium salicylate a day,—and had very good results.

Huber, who used salicylic acid in four 1-gramme doses every alternate day, never observed delirium, dyspnœa, vomiting, or even repugnance to the remedy.

In my first case I used small doses purposely. The action might have been more marked with larger ones, and double the dose would be as easily borne. In general, however, I prefer salol to sodium salicylate, or any other salicylic preparation, and shall use it in future. With any preparation, Huber's plan of giving every other day might be useful.

In conclusion, we can fairly say,—

1. Salicylic acid and its salts are among the most effectual agents in the treatment of pleurisy with effusion.

2. In effective doses the remedy is harmless, and with proper selection of the preparation, and care in administration, causes little or no discomfort to the patient.

3. Salicylates act most promptly in pleurisies with serous effusion of recent origin or of long standing, but they are efficient in simple dry pleurisy, and often act favorably in secondary pleurisy.

4. There is no evidence that they are useful in suppurative cases.

5. The drug acts as a diuretic, but may have an effect on the pathological process, or on the cause of the disease.

6. Salicylates have a more marked action in pleurisy than have the diuretics commonly so called.

7. "The duration of the treatment with salicylic preparations is less than with diuretics, common salt, or roborant medication" (Eugster).

8. The remedy can be used at the earliest period, and favorably affects all symptoms.

9. The drug may be given in the form of the acid, or any of its salts, in doses of a drachm of the former, or 1 to 2 drachms of a salt daily. In ordinary cases it is not necessary to give the larger doses, and 60 to 90 grains of sodium salicylate or salol daily may be considered full beginning doses, to be diminished one-third or one-half after the effect is manifest.

10. The ordinary precautions must be observed in giving the drugs, and during their administration the total amount of urine should be measured daily.

RESTERILIZED SPONGES, WITH BACTERIOLOGICAL INVESTIGATION.

By D. Braden Kyle, M.D.,

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THE question of what is the best sponge to use in surgical operations still remains unsettled, some surgeons preferring the sponge, others the bichloride gauze. At the suggestion of Professor W. W. Keen, who had used sponges in a septic case, it was decided to investigate from a bacteriological stand-point the advisability of resterilization. A report of the investigation may be of use to others. As above stated, these sponges had been used in a septic case, and resterilized by soaking twenty-four hours in bicarbonate of sodium solution, and then placed in carbolic acid solution (strength five per cent.) for one week. Some of the sponges were large and flat,—"elephant-ear" sponges,—while the others were thick and firm in the centre. Tubes were inoculated from each by taking from the outer layer of the sponge a small portion and placing this in the agar-agar tube; then cutting the sponge open, a small portion was taken from the centre. The results were as follows: The flat, thin sponges showed no growth. With the thick sponges the experiments from the surface gave negative results, but from the thick, firm centre, from eight different inoculations, in from two to five days, at a temperature of 80° F., each showed marked growth. Stains made from these tubes showed numerous bacteria. By the process of isolation the micro-organisms of suppuration were found. The sponges were left in the carbolic acid solution for six weeks, then inoculations made as before, with practically the same results. The thick sponges were subjected to pressure while in the fluid, and inoculations made, with no change as to results. In making these experiments the same precautions were taken as would be neces-

sary in any antiseptic or aseptic operation, the inoculating-needle, forceps, scissors, etc., being sterilized in a steam sterilizer, and the experimenter's hands being prepared by soap and water and brush,—special attention being given to the cleansing of the nails,—then washed in bichloride solution (1 to 1000). In each case confirmatory experiments were made, which proves that the infection did not come from any want of antiseptic precautions during the experiments. As to why the central portion of the thick sponges were not resterilized may be explained by the fact that when the sponge was used it was taken from the carbolic acid solution; being moist, it was in the condition requisite to rapid absorption, thus taking up during the operation blood and pus. The blood coagulating, held in the fibrin the infecting bacteria. The sponge being thick, this central portion was not thoroughly dissolved, and we had left, even when placed in the carbolic acid solution, this infected centre. From this we might reason that, if this central portion resisted the dissolving action of the soda and the germicidal action of the carbolic acid, the surgeon would be perfectly safe in using the sponges in an operation. While this is true, yet during an operation the sponges are subjected to pressure and saturated with alkaline solutions which would possibly soften portions of the infected centre, and the aseptic field of operation be, unknown to the operator, converted into a septic one. These researches prove that the central portion had not been rendered aseptic by the process of sterilization, and possibly explains why we have infection following operations where every antiseptic and aseptic precaution has been taken. These tests would indicate that it would be much safer, especially in infected cases, to use sponging material which can be destroyed after operation, the best, possibly, being some form of gauze; also that, if sponges are to be used, the thin, flat sponge should be selected.

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ON THE TREATMENT OF HÆMOPTYSIS.

By Dr. Fr. Eklund, Stockholm, Sweden.

It is well known that the coughing of blood is a symptom of many different diseases, and it is only necessary to remind the reader that it occurs in pulmonary consumption, in congestion of the lungs due to cold, in hyperæmia and stasis, and in valvular disease of the heart, especially of the mitral valve, when secondary infarcts occur. Finally, the coughing up of blood may be due to the perforation of an aortic aneurism, to acute pneumonia, or occur as a result of pulmonary traumatism. Blood also comes from the mouth, it will be remembered, in cases of epilepsy, hysteria, hæmophilia, and purpura hæmorrhagica; sometimes it is due to vicarious menstruation or suppressed hemorrhoids. Of all these, by far the most important, of course, is the hemorrhage which is due to tubercular phthisis, both by reason of its severity and frequency, and it is my desire in this article to call attention of my colleagues in the profession to the correct treatment of this symptom, because it is of the utmost importance to the patient that proper treatment be instituted. We are told by authors who are supposed to be reliable that certain methods are to be carried out; for instance, in the "Therapeutisches Lexikon für Praktische Aerzte," von Dr. Anton Bum (Wien und Leipzig, 1891, S. 643), as well as in the "Real-Encyclopaedie den gesammten Heilkunde," von Albert Eulenburg. In the former of these cited works it is written, on page 643, "Man lasse den Patienten kühles Getrank (kaltgestellte Milch, Mandelmilch, Limonade) nehmen und gebe von Zeit zu Zeit Eis in kleinen Pillen zu schlucken;" and in the latter the author expresses his opinion on page 630 in these words: "Auch müssen die Nahrungsmittel möglichst kühl genommen werden."

During my earlier professional career as a general practitioner I regularly applied these measures, but it is a long time since I have discontinued this deleterious practice, for I could not avoid observing that with each ice-pill which was swallowed, or with each drink of cold milk that was taken, the bleeding increased; large quantities of blood were coughed up. It is clear that the irritation of the ends of the pneumogastric nerve in the mucous membrane must result in paroxysms of coughing at the same time that the cold produces contraction of the vessels of the stomach, and in consequence a corresponding dilatation of the blood-vessels in the diseased area. Under these circumstances, if the bleeding has stopped, one is forced to believe that such a favorable result was gained, not in consequence of the treatment, but in despite of the treatment. Furthermore, if one will but pay attention to the ingenuous statements of trustworthy, intelligent patients who have lungs susceptible to hæmoptysis, he will learn that there is nothing that they fear so much as the drinking of cold liquids, because the coughing up of blood is an

immediate consequence of such a procedure. Persons who suffer from hæmoptysis should pay special attention to the maintenance of warm feet, as every neglect in this respect results in congestion of the lungs and coughing up blood. Washing the mouth and gargling with cold water irritates the ends of the fifth, vagus, and glosso-pharyngeal nerves, which all communicate intimately, and this increases expectoration. For all these reasons I have long desisted from giving ice-pills and cold drinks in cases of hæmoptysis, and I give instead lukewarm, mucilaginous potions, which have been very useful, and with which I have every reason to be quite satisfied. It is a popular custom with us here in Sweden to administer a tablespoonful of common salt, well dissolved in a glass of cold water, in the case of hæmoptysis. I most earnestly caution against this practice. The secondary effects will always be in the absorption of the great quantity of sodium chloride; the fragility of the walls of the blood-vessels is increased, and the susceptibility to hæmoptysis augmented. For these reasons it must be the object of the medical faculty to counteract energetically such a pernicious popular custom. On the other hand, it has been of great advantage to the sick to have a small ice-bag applied over the bleeding spot, as, for example, over the apex of one of the lungs. As far as the treatment with drugs is concerned, I wish, above all, to call attention to the fact that quinine should be administered as follows:

℞ Sulphate of quinine, ʒi;
Extract of ergot, gr. xxx.

Make into forty pills, and take one or two pills twice to three times a day.

Or the following may be prescribed with advantage:

℞ Fluid extract of hamamelis, ʒii;
Fluid extract of cinchona, ʒii;
Extract of licorice, ʒiiss;
Distilled water, Oi.

Shake thoroughly, and take a dessertspoonful to a tablespoonful every two or three hours.

Lead acetate is very much praised on account of its styptic properties, but I believe it is wise to refrain from administering it to young persons, because after its continued administration lead colic may be produced. In older persons this accident is not very likely to occur, but to be of value it must be given in large doses combined with the acetate of morphine.

THE TREATMENT OF INCOMPLETE ABORTION.

By Edward P. Davis, A.M., M.D.,
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IT is my purpose in this paper to discuss incomplete abortion not the result of criminal interference; complete abortion, or the expulsion of the entire ovum without the assistance of the physician, will not be considered.

Incomplete abortion is most common in cases where a physician is not summoned at the beginning of the process. If called in time, before considerable hemorrhage has occurred, the physician may be able to check the abortion, or, by judicious management, to secure the expulsion of the ovum entire. In either event, the prognosis for the mother's recovery is good, while in abortion checked by medical treatment the ovum may retain its vitality and secure adhesion to the lining membrane of the uterus.

Quite different is the case, however, where considerable hemorrhage with excessive pain has taken place before the physician sees his patient. He will frequently find her showing the effects of loss of blood, her clothing possibly stained with blood, and the birth-canal containing clots, or showing evidences of continuous but slight hemorrhage. Vaginal examination in these cases in multiparous women often reveals a portion of the ovum within the internal os uteri. If the genital canal be patulous, and the uterus be not firmly contracted, it will usually be possible for the physician to extract the remains of the ovum with his finger without especial difficulty. If the uterus be then thoroughly examined by the finger,—the patient anæsthetized, if necessary,—clots and *débris* are readily removed from the interior of the uterus, and a hot intrauterine douche of creolin or carbolic acid, followed by the intrauterine application of an iodoform gauze tampon, will complete the treatment of such a case.

It not infrequently happens, however, that even in multiparous women, after the first free hemorrhages have occurred with separation of the ovum, that the membranes rupture, the embryo escapes, and the placenta, with possibly the membranes, remains behind. If an interval of a few hours elapses before the physician's visit, he will frequently find in such cases the uterus contracted to such a degree that the introduction of the finger within the uterine cavity is impossible without forcible

dilatation. Slight but persistent hemorrhage is often observed in this condition of affairs.

In primiparous women, the uterus may so tightly contract upon a retained placenta, or portion of an ovum, that the introduction of a large uterine sound may be impossible a few hours after the actual escape of the embryo has taken place. This condition of contraction of the uterus with retention of a portion of the ovum is among the most trying and dangerous conditions which the physician is called to meet in obstetric practice. Radical statements are frequently made to the effect that such a woman is in immediate and great danger, and that the physician should not rest until the uterus has been forcibly dilated and the ovum eradicated. While there is danger in delay, if that delay be not accompanied by the observance of antiseptic precautions and by a judicious study of the processes by which nature treats these cases, there is greater danger in unwarranted interference, inflicting traumatism upon the genital tract, and exposing the patient to the added danger of septic contagion. It is a familiar fact that the uterus seeks to expel a foreign body, and that, sooner or later, a polyp which has become separated from its base of nutrition, a placenta which has become separated, a dead fœtus, a tampon introduced within the uterine cavity, are expelled by spontaneous uterine contraction. If this hint be taken, the practitioner will abstain from forcibly dilating a uterus holding in firm contraction a retained placenta, but will take advantage of the spontaneous relaxation and expulsive efforts of such a uterus, which, sooner or later, will bring the retained material within convenient reach of his finger or instruments. It cannot be too strongly insisted upon that such a policy is unsafe without the observance of absolute cleanliness and, better, antiseptic precautions. As illustrating the principles of treatment in these cases, I report the following instances of incomplete abortion recently under treatment in the Maternity of the Jefferson Medical College Hospital:

Mrs. T., an anæmic, ill-developed woman, a multigravida, was brought by the ambulance to the Maternity in a condition of shock and collapse caused by profuse hemorrhage. The history given by the ambulance surgeon was that he had been summoned to the patient with the statement that she had just aborted at an early period of gestation; there were evidences of profuse and recent hemorrhage. The patient was made as clean and comfortable as possible, and brought at once to the Maternity.

On admission, she was exsanguinated; her pulse scarcely perceptible at the wrist; the surface of the body cold and clammy; her respiration sighing and feeble. Slight hemorrhage was present from the genital tract. The resident physician, Dr. Spencer, at once made an examination, finding the cervix uteri impervious to the finger without the exercise of considerable force. He accordingly tamponed the os uteri and vagina with iodoform gauze, carrying the end of the strip of gauze just within the cervix. The patient was then stimulated by hypodermic injections of strychnine and digitalis, by the external application of warmth, and the internal administration of alcohol and hot fluids. Two and a half hours after admission, the patient had reacted, and complained of slight uterine pain. The gauze tampon had become saturated with fluid blood, and slight oozing appeared at the vulva. As the patient's condition was favorable, and as the persistence of uterine pain since her admission gave reason to hope that if a portion of the ovum had been retained it would be found accessible, the patient was placed across a bed and the genital tract thoroughly irrigated with a one-per-cent. mixture of creolin and hot water, at a temperature of 100° F. Digital examination revealed a small placenta in the cervix uteri, which had dilated sufficiently to admit the finger with ease. The placenta was removed by the finger, and the interior of the uterus thoroughly but gently curetted with the douche-curette, through which a stream of hot creolin mixture constantly flowed. Decidua and clots were thus removed, the oozing of blood ceasing completely. The uterus was then tamponed with moderate firmness with a single piece of iodoform gauze, a portion of which filled the vagina without distending it. The patient required no subsequent treatment, beyond the removal of the gauze twenty-four hours afterwards, and the washing out of the uterus at that time with the creolin mixture. An occlusion vulvar dressing was worn, and the external parts were carefully bathed with bichloride solution (1 to 2000) after each micturition and defecation. Examination of the placenta showed it to be at about the eighteenth week of gestation. The relaxed condition of the patient's general muscular system, and the profuse hemorrhage from which she suffered, were explained in part by an examination of the thorax, where evidence of pulmonary consolidation, probably tubercular in character, was present. The placenta revealed no abnormity upon examination.

The difficulties often experienced in dealing with primiparous women are exemplified in the history of the following case:

Mrs. C., aged forty, married less than a year, a woman of good general development and health, was not positive that she was pregnant; while engaged in household work, necessitating the lifting of heavy articles, she was taken with severe uterine pain and profuse hemorrhage. A physician was summoned, who diagnosticated threatened abortion. The hemorrhage, which at first had been profuse, gradually ceased, and on the following day the patient was brought to the Maternity in a carriage. On admission, it was found that a second free hemorrhage had occurred during the patient's transportation. The os and cervix were tightly closed, resembling those of the virgin woman. A slight but persistent hemorrhage was present. The vagina was moderately tamponed with aseptic cotton, thoroughly powdered with iodoform, and the patient kept quiet in the recumbent position. Twelve hours after admission the tampon was removed, the os and cervix remaining in the same impervious condition. A vaginal douche of bichloride of mercury solution (1 to 4000) was then given, and a tampon of iodoform gauze was applied. Eighteen hours after this the tampon was removed, when it was found that the os and cervix had considerably softened and partially dilated. A portion of the ovum, not distinguishable, was found within the cervical canal. Hemorrhage commenced with the removal of the tampon; the vagina was again douched, and a gauze tampon applied, the end of the gauze being inserted within the cervical canal. Uterine contractions with abdominal pain ensued, and slight staining of the gauze tampon was observed. There was no active hemorrhage, and the patient's pain and uterine contractions ceased after an hour or two. Four hours later hemorrhage began again, when the patient was anæsthetized, the tampon removed, and digital examination made, revealing an ovum at about the fifteenth week of gestation partially engaged in the internal os. The ovum was removed with the placental forceps and finger, its complete removal being accomplished by the use of the douche-curette, through which a stream of hot creolin mixture constantly flowed. The uterus was then tamponed with iodoform gauze, which was removed twenty-four hours afterwards and the uterus douched with creolin mixture. An uninterrupted recovery followed.

I desire to emphasize by the description of these cases the practical considerations which pertain in the treatment of incomplete abortion. Unless the physician is in possession of the complete ovum, no abortion should be considered complete unless the interior of the uterus has been thoroughly examined by the finger or by the curette, and has been demonstrated to be empty. The history given by the patient is valueless as to the appearance of clots discharged, except in so far as it indicates a previous occurrence of considerable pain and hemorrhage. If pain and hemorrhage can be proved to have occurred, the escape of the embryo has probably taken place. There remains, then, for the physician the treatment of incomplete abortion. Thorough antisepsis, patience, and accurate observation of the condition of the uterus are prerequisites for success in treating these cases. We prefer the douche-curette whose edge is not a cutting edge, but is as sharp as that of a paper-cutter. The advantage of this instrument, originally devised by Carl Braun, is the little damage which it may inflict upon the uterus, and the fact that it permits the administration of an intrauterine douche while the curetting is going on. In septic cases, where infected decidua and membranes are removed, the tampon of iodoform gauze may be replaced by a suppository, containing 60 grains of iodoform, and inserted into the fundus of the uterus; a narrow strip of gauze may be carried within the cervical canal, and the remainder packed about the os and cervix in the vagina.

Occasionally the uterus retains an ovum for an extraordinary period, its removal being finally accomplished without danger to the patient. Cholmogoroff* reports two cases of missed abortion which were remarkable for the length of time during which the ovum was retained. In the first of these cases the life of the embryo persisted for four months, while the product of conception was retained for seven months after the death of the embryo. The entire pregnancy persisted for eleven months. In the second case the embryo perished at three months, but was retained for two months after death in the uterus. In neither case was operative interference indicated; the patients were kept under observation, and the expulsion of the ovum followed spontaneously. Both patients made uninterrupted recoveries. Very similar instances are on record which serve to emphasize the fact that radical interference, without the co-operation of uterine dilatation and expulsive contractions, is contraindicated in these cases.

The prognosis in cases of incomplete abortion depends upon the cleanliness and antisepsis observed in the care of the patient, and the

* *Zeitschrift f. Geburtshülfe u. Gynäkologie*, Band 22, Heft 2.

judgment displayed in interfering with her. In a series of eighty-four cases of abortion reported by Kuppenheim,* of Heidelberg, in seven only did complications of any sort arise. The method of treatment employed was that which we have outlined, the finger being used, under careful antiseptic precautions, to empty the uterus, whenever possible, in preference to instruments.

In obscure cases where grounds for suspecting pregnancy exist, where pain, shock, and hemorrhage occur, the practitioner must keep in mind the occurrence of ectopic gestation with tubal abortion; such abortion is usually incomplete, the embryo and its clots partially escaping from the tube, while the chorion or placenta remains within its cavity. An admirable description of such abortion has been recently given by Sutton.† An instructive case of tubal incomplete abortion in a primipara in early pregnancy is given by Renteln.‡ Her symptoms were abdominal pain, giddiness, and flooding, which increased in spite of rest and the administration of opium. The gradual development of a tumor led to a diagnosis of tubal gestation, and abdominal section confirmed the existence of tubal abortion. These cases and many others of similar nature emphasize the fact that pain and hemorrhage, accompanied by the possibility of pregnancy in cases where the uterus can be demonstrated to be but slightly enlarged, and empty, should give rise to a suspicion of ectopic pregnancy and abortion, and lead, after due consultation, to exploratory abdominal incision to confirm a positive diagnosis.

A CONSIDERATION OF SOME MODERN THERAPEUTIC AGENTS IN THE TREATMENT OF DISEASES OF THE STOMACH.

An Address delivered before a Clinical Meeting of the Alumni Association of the Jefferson Medical College.

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As an indication of the therapeutic measures that I consider the most important in the treatment of gastric diseases, I may say that, if I were compelled by force of circumstances to restrict myself to a single remedy, and were permitted to make a choice, I should unhesitatingly name lavage as that better meeting general indications than any other. Of course there would then be left untreated certain reflex gastric disturbances,—those of nervous anacidity and atony,—and cases also of ulcer and atrophy of the mucosa; but since the last of these is practically incurable, and ulcer requires no treatment, save recumbency and rectal feeding,—indirect therapeutic measures,—and the other ailments are only reached by attention to another viscus or to the correction of a neurosis, the remedy chosen would be applicable to nearly all other affections of the stomach, such as the various forms of catarrh, to dilatation, to cancer, and to cases of hyperacidity.

My second choice would be HCl. Not second because I consider it of less value than the stomach douche, but because its use would be much more restricted; for now only the various forms of catarrh, and dilatation not arising from pyloric stenosis, and cases of atony with lessened acidity would be amenable to treatment. Following the selection of lavage and HCl, I would make, as a third choice, the antacids, as indicated in a large group of gastric disorders to which attention has only in very recent years been called, and in which, in place of subacidity, hypersecretion of HCl is the chief symptom, resulting often in imperfect gastric digestion and always in pronounced intestinal ingestion, with emaciation and marked impairment of the general health.

Succeeding antacids, again, I should speak for other remedies, besides HCl and the douche, influencing secretion and propulsion, such as nux vomica or its alkaloid strychnine, and the intragastric application of electricity. The actual utility of the last is still *sub judice*, but apparently has a promising though limited field in ailments characterized by impaired motility without obstruction *a fronte*, in those of diminished secretory activity without decided atrophy of the mucosa, and in the neuroses of the stomach. I should then speak for a digestive ferment, such as pancreatic extract,—an indirect remedial agent of great service in certain gastric affections. Pepsin I should not ask for, as I can think of no indication where it can be especially of value.

Lavage is of utility both as a cleanser of the gastric mucosa and as a correcter of abnormalities in the various gastric functions. Whether used simply to free the stomach from accumulated mucus in cases of gastric catarrh, mild or severe, with lessened or heightened acidity, or for the removal of masses of mucus and decomposing material, the concomitants of gastritis,

* *Deutsche Med. Woch.*, 1891, No. 53.
† *Medical Press*, 1892, No. 2793.
‡ *St. Petersburger Med. Woch.*, 1892, No. 16.

of dilatation, and of atony, the stomach douche is invaluable, and can be replaced by no other remedy. The utility in this direction has become the more apparent with the recently-acquired knowledge that various morbid conditions hitherto regarded as having origin and seat in parts remote from the stomach, and due to incompetence of other organs and tissues, actually arise from gastric auto-intoxication; for so now can be explained certain forms of cerebral disorder, such as neurasthenia, headache, insomnia, and epileptiform convulsions, and rheumatoid affections, such as arthritis deformans, and also diffuse neuralgic and rheumatic pains. That many-sided condition, too, termed lithæmia or uricacidæmia, of which so much has been written and so little is actually known, is suspected on more than slight evidence to have its origin in auto-infection from the stomach, as Bouchard has pointed out and Stockton has urged.*

Indeed, so-called lithæmia, undeveloped or American gout, may now, in light of recent research, better be termed American dyspepsia, in which absorption from the stomach of the products of decomposition is the more likely cause of the varied complex of symptoms than the much-abused uric acid.

Ewald has asserted that at the age of forty there is rarely encountered normal glandular tissue in the stomach; this, true in Germany, is probably equally so elsewhere, and likely nowhere more than in this country, in which abuse of the stomach begins with life itself and ceases only with its extinction. In these days of hurried living, with little or no attention to stomach hygiene, rare is he who at a much earlier age escapes a mild chronic dyspepsia, evidences of which are ever ready to appear on slight deterioration in general health. The frequency of this,—gastric catarrh,—with no special symptoms referable to the stomach, can only be determined by gastric examinations in the supposed healthy. In instances in which I have been able to make observations on these,—not done with this as an object, but to determine the normal acidity at varying stages of digestion,—the frequency with which sub- or hyperproduction of HCl was encountered, associated with such evidences of catarrh as the presence of quantities of mucus, mingled with the removed stomach-contents, has forcibly impressed me with the probable rarity of a healthy mucosa. Lavage in some of these, to determine the fasting condition of the stomach as regards the presence of mucus, showed a similar state of affairs, especially marked in the morning succeeding a late supper, even though ingested without other alcoholic beverage than a glass of beer. True, my studies on the supposed healthy have not been numerous, and the deductions therefrom are based on data derived from a class paying no special attention to gastric hygiene; but that same class comprises by far the majority of humankind, and is encountered in all conditions of life. Beaumont's observations on the robust young Canadian St. Martin long ago showed the extraordinary ease with which decided macroscopic evidence of gastritis will appear on slight provocation and frequently without symptoms referable to the affected organ.† That attacks of these acute affections, frequently repeated, eventually lead to chronic catarrh there can be no doubt.

The utility of lavage in these abnormal gastric conditions where no very marked catarrhal symptoms exist, but in which exterior ailments of gastric origin are often present, is as unquestionable as in the more pronounced cases of catarrh with ectasia. Daily morning douching to remove mucus and muco-pus in those in whom a dyspeptic tendency exists will serve to prevent the advent of chronic catarrhal gastritis. So much am I an advocate of the tube that I recommend its use to all those who, having dyspeptic symptoms, are given to late suppers or to even slight alcoholic indulgence.‡

Apart from the utility of lavage in cases of simple catarrhal gastritis as a cleanser of the mucous membrane, the importance of which cannot be overestimated, it has a special effect, direct and reflex, upon secretion and motility. Its utility in gastrectasia is too well known to necessitate more than passing mention; no combination of remedies can approach it in effects. By lavage alone ectasic symptoms are promptly relieved, and in dilatation due to simple atony of the muscularis, without decided degeneration of the same, a cure often results; though the latter may be also hastened by the intragastric use of electricity and by nux vomica and hydrochloric acid. Regarding lavage, I have elsewhere§ stated that not only are the symp-

* See the latter's valuable paper, "Misconceptions and Misnomers revealed by Modern Gastric Research" (*Med. News*, May 28, 1892).

† Such as generalized erythematous, aphthoid, and ulcerated patches, associated with secretion of mucus or muco-pus.

‡ Similar results cannot be obtained from the ingestion of hot water or hot alkaline drinks. It is true that mucus, muco-pus, and food remnants may be thus swept into the duodenum, but solution of their products or decomposition is thus favored, and before extrusion of these through the emunctories takes place, toxic results occur.

§ Hare's "System of Therapeutics," vol. ii. p. 965.

toms occasioned by stagnation of food ameliorated or removed and more or less tone restored to the relaxed and overstretched muscle, but the gastric absorbent and secretory functions, often profoundly affected, are stimulated to renewed activity. In consequence of these beneficial effects, even in cases of incurable stenotic dilatation, which prior to commencement of lavage have been emaciated and cachectic in appearance to a high degree, an extraordinary change for the better may appear in the course of a few weeks or months, though the amount of food taken has been but slightly in excess of that formerly ingested.

In cases of hyperacidity, with or without hypersecretion, brilliant results are also often obtained by lavage with simple water, or that containing antacids. Cases of this sort so cured are perhaps sufficiently common not to be detailed. I may here, however, speak of two, both of which are more than ordinarily instructive from several points of view.

In one, a robust male, S. T., aged thirty-two, gastric symptoms were somewhat in the background and only elicited by direct inquiry. The ailment for which I was consulted was generalized neuralgia. For about ten years the attacks had been limited to the head. They occurred irregularly bi-weekly, affecting indifferently either side. The pain was always of great severity, often accompanied by undue prominence of the eye, by unilateral sweating, and by a smaller pulse on the affected side. Compressing the nucha always diminished the pain. Subsequently, while it continued to affect the head, as before, vague neuralgic pains occurred in various parts of the body; at one time in a limb, at another in the loins, and again and most obstinately in the testicles.* The appetite was always large and often voracious, especially at the time of headache. Eating diminished, temporarily, the cephalalgia. Other gastric symptoms—of which he had little, when the extent of the acidity is considered—were burning pain in the epigastrium, occurring an hour or so after meals, diminished by eating or by large draughts of water; sour eructations soon after meals; constipation. The stomach during fasting was always found to contain from twenty-five to one hundred cubic centimetres of a fluid with an acidity of from twelve to thirty-five, which responded decidedly to Günzburg's solution, and showed no evidence of lactic acid. One hour after Ewald's test meal the acidity† was extraordinary,—on one occasion 180, with 0.60 per cent. of free HCl. Organic acids were usually absent. He at first refused to submit to lavage, and was treated with antacids in full doses, carefully-regulated diet, daily morning use of sodium sulphate and bicarbonate in hot water. The improvement was but temporary. Subsequently, on the appearance and persistence of the diffuse neuralgia, especially the testicular (only temporarily benefited by the various measures tried), systematic daily lavage was instituted, at first with sodium bicarbonate, one drachm to a pint of hot water, and subsequently with unmedicated warm water. No headaches or other neuralgic pains have occurred since the douche was regularly employed.

The second case—D. McV., aged sixty-three—was quite similar as regards the gastric condition. The stomach contained free HCl, which also existed in decided excess after a trial meal. Symptoms of gastric disorder had been present for about two years. He had lost twenty-five pounds in weight in four months, due in all probability to duodenal indigestion occasioned by the hyperacidity, and had been compelled to abandon work (as an engineer) several months before placing himself under treatment. He was debilitated; heart was feeble and radials rigid. His symptoms were chiefly gastric. There was severe pain in the epigastrium, occurring two hours after eating, and at night, independent of food. There were also sour eructations, obstinate constipation, troublesome flatulence, and pronounced insomnia. He was melancholic, and believed his ailment incurable. Full doses of sodium bicarbonate, three to four hours after a meal, and a daily laxative dose of a mixture of sodium sulphate, phosphate, and bicarbonate were at first prescribed. He improved, but the improvement was not maintained, though treatment was continued. Daily morning lavage was then instituted with warm alkaline water. The amelioration, or indeed cure, was instantaneous. No gastric symptoms have occurred since douching was begun several months ago. Lavage is still continued. The patient has since continued in robust health.

The occasional untoward effects from lavage‡

* The testicular neuralgia was supposed by a surgeon, to whom I sent him for examination as to the urethral condition, to be due to irritation from a very slight stricture and urethral hyperæsthesia. Systematic bougieing was practised, but with only temporary benefit.

* One hour after Ewald's trial breakfast the normal acidity, due almost entirely to free HCl, should be between 40 and 60.

‡ Recently reviewed by Fenwick in *The Practitioner*, April, 1892. Such as convulsions in the hysterical and tetany in gastrectasia, syncope and sudden death in the predisposed as a result of abrupt alteration in the intra-abdominal pressure, perforation in cases of ulceration,

occur so rarely that though the likelihood of their occasional incidence should always be borne in mind, fear of them should not deter a resort to the douche in any case in which its use seems indicated. I have never seen ill results from the use of the tube, though I have employed it in all varieties of cases, including ulcer, for diagnostic purposes. It should not be used for lavage in ulcer, and should rarely be employed for diagnostic purposes in the same, especially if a tendency to hemorrhage exists. In cases of feeble heart, large amounts of fluid should not be introduced or removed suddenly.

In a sphere more limited than lavage there is no remedy more distinctly useful than HCl, and conversely none more provocative of harm if the indications for its administration are not carefully attended to. Its utility as a therapeutic agent has long been recognized, but for a considerable period its employment was altogether empirical, until the discovery that HCl was a natural constituent of the gastric juice, and essential for vigorous peptonization. Subsequently, though more enlightened notions governed its administration, based on these data, its hap-hazard employment was still general,* until the brilliant application of the stomach-tube to diagnosis by Leube paved the way for its more rational application. The investigations of Leube having shown that a deficiency of HCl was very common in gastric disorders, its use became general in all cases of so-called dyspepsia, many of which were probably those of hypersecretion of HCl, a sensory, secretory neurosis not then recognized, but subsequently discovered by Reichmann (gastrosuccorrhœa) and carefully studied by him, by Jaworski (hyperacidity with, or oftener without, hypersecretion), and others.

Prior to the discovery of these secretory neuroses great difference of opinion naturally existed as to the utility of HCl, it probably very frequently being employed in cases of hyperacidity, as well as in those of diminished secretion, as examination of the stomach contents was not then general, the methods employed lacking the convenience and exactness of those of to-day and the soft tube being then unknown. The recognition of the existence of these neuroses, in which harm only could result from its use, and of certain other ailments, such as atrophy of the mucosa, in which little benefit could accrue, has, without diminishing its extraordinary utility in certain cases, narrowed the indications for its employment, as it has also rendered necessary the application of the tube for their revelation.

When one considers the ease with which an insight may be obtained into gastric disorders by the above-named measure, by methods in themselves most simple of manipulation, and the intelligent therapeutic application that can be made of these, the lamentable ignorance yet existing regarding diagnosis and treatment of stomach-diseases is a matter of wonder. The acceptance of the statement by many, that the use of the tube is necessary to arrive at the indications for the administration of HCl, would doubtless lead to the withdrawal of this remedy from their armamentarium, and yet this would be better than that it should be indiscriminately prescribed in all cases of so-called dyspepsia.† Certain common tokens of impaired gastric digestion, when present, may be said to furnish general indications for its administration. These are a sensation of weight in the epigastrium occurring shortly or immediately after a moderate meal of proteids, succeeded, perhaps, by gaseous, rancid eructations; anorexia or an easily-satisfied appetite, with nausea succeeding eating; a coated, flabby tongue showing the imprints of teeth. These symptoms, common, with a variety of others, in gastric

from straining attending violent vomiting, and hemorrhage in and from the same and as a result of variation in intragastric tension.

* Thus, Trousseau, though convinced of its great utility in certain forms of stomach-disorder, could formulate no better indication for its use than to recommend recourse to it in those cases in which alkalies failed.

† As an indication of the bearing of gastric-juice examinations on HCl therapy I may mention my own case. Early in the autumn I had suffered from impaired digestion, through diminished secretion, greatly relieved by ʒi doses of dilute HCl after meals. The symptoms eventually disappeared; HCl was discontinued. Recently dyspeptic symptoms recurred. These were, especially, epigastric sensations of weight, discomfort, and acidity, appearing about an hour after meals. The tongue was flabby, showing the imprints of the teeth, as was usual. These symptoms were supposed to represent diminished secretion of HCl with presence of organic acid fermentation. Without a stomach examination, HCl was again begun, but at once discontinued on an aggravation of the symptoms occurring. On the day following two examinations of the gastric contents were made. Three hours after a lunch of bread and butter and panned oysters, the total acidity was 90, with very marked HCl response (Günzburg's). No quantitative estimation made. On the same day, two and a half hours after a dinner of beef-stew, corn, bread and butter, sherry, and a cup of tea, the total acidity was 108. Günzburg's response was decided up to *thirty* dilutions. Mintz's test = 0.32 per cent. *free* HCl; but a trace of lactic acid; no acid salts. Subsequent examinations, made daily for a short time, always showed increased HCl hyperacidity. Here, within a few months, a complete reversion of the secretory condition had occurred.

atony and catarrh signify deficient gastric secretion, and yet all may be absent and a state of subacidity exist, and several present with normal or hypersecretion of HCl.

Though it is generally accepted that the only indication for the employment of HCl is deficiency in its secretion, therapeutists are by no means in accord as to the precise mode of action, the tendency in Germany being to doubt the utility of its administration as a digestant if secretion of HCl be much diminished, any benefit then resulting being supposed to accrue from its antiseptic action or through its effect on gastric motility and its stimulating influence on gastric secretion. As an antifermentative and antizymotic HCl takes high rank. Putrefactive changes in the stomach originating through stagnation of food with deficient secretion, permitting the development and multiplication of bacteria, with the presence of irritating organic acids and poisonous leucomaines, cannot occur with a small excess of free HCl. The growth of pathogenic fungi, such as the bacillus of cholera and of enteric fever, are similarly inhibited by traces of this acid, the life of the organisms ceasing when the amount of the latter equals a certain percentage.*

The influence of HCl on the gastric peristole is still *sub judice*. Leube's experiments led him to believe that the increased acidity towards the termination of gastric digestion was the main cause of the onward progress of the chyme into the duodenum. The observations of others in this direction, notably Fleishner,† do not support Leube's contention, and it is also negatived by several clinical facts.‡

The ability of HCl to aid in the transformation of pepsinogen into active pepsin, and labzymogen into lab-ferment, is well known, and its utility as a direct stimulator of its own and pepsin secretion has in recent years also been urged, but on no direct evidence; it being, however, accepted that, in those with simple diminution in secretion, after a course of treatment by HCl, the digestion continues to improve after its withdrawal.

Reichmann and Mintz, believing this practically the only result to be obtained by the administration of HCl, undertook a series of experiments to determine this point, a recently-made preliminary report of which is favorable.§

In a series of cases in which little or no free HCl existed (one in a half-hour after Reichmann's trial breakfast), increased secretion resulted in most of them on the administration of HCl after meals for some days. Examinations were made before taking and after discontinuing the HCl. They note that but one other experiment of this sort—that of Riegel's‖—has been reported. In Riegel's case free HCl had been constantly absent, even after several months of lavage; but by the administration of full doses of HCl for fourteen days, free HCl eventually appeared in the contents of the fasting stomach.

Regarding the utility of HCl as a digestant, the trend of opinion seems to be against it, but on very inadequate evidence, the notion prevailing that sufficient cannot be taken when secretion is much diminished to exert any digestive action, the dose administered, though large, disappearing in forming combinations with the albuminoids and salts of the food, and not manifesting itself as free acid even shortly after its ingestion. Reichmann,¶ convinced of this as the result of experiments which he regards as conclusive, but which were, however, evidently made on cases with atrophy of the gastric tubules,** no longer uses HCl as a digestant. My own opinion has been entirely contrary to this view, because of practical results obtained by the administration of HCl in cases of nervous dyspepsia and chronic gastritis, in which little or no free HCl has usually been present in the gastric secretion. I have frequently found in cases in which, after a trial meal, the total acidity was trifling, and the test for free HCl negative or slight, that immediate relief was obtained from symptoms of indigestion, such as weight in the epigastrium and nausea after food, by a full dose of acid. Instantaneous relief thus obtained could only be explained on the supposition that the acid exerted some digestive action. In these cases a certain amount of HCl is of course secreted, but often barely sufficient to more than wholly combine with

* Kitasato (*Zeitschrift f. Hyg.*, Bd. iii.) found that the development of cholera bacilli ceased in an acid reaction 0.06 per cent. to 0.08 per cent. HCl. Typhoid bacilli required a much greater percentage,—1½. Hamburger's figures (*Centralbl. f. Klin. Med.*, 1890, No. 24) are much smaller than the last. It would appear that Kitasato had used bouillon, the albuminoids and salts of which combined with the free HCl. (See also Reichmann and Mintz, *Wiener Klin. Woch.*, June 23, 1892.)

† *Berlin. Klin. Woch.*, No. 7, 1887, quoted by Reichmann and Mintz, *Wien. Klin. Woch.*, June 23, 1892.

‡ HCl hyperacidity is occasionally met with in atony with stagnation of the ingesta. In certain cases of hyperacidity the raised acidity causes spasm of the pylorus and retention of the chyme.

§ *Loc. cit.*

‖ *Deutsche Arch. f. Klin. Med.*, Bd. xxxvi.

¶ *Loc. cit.*

** *Deutsche Med. Woch.*, No. 7, 1889.

the albuminoids and salts present in the food. The excess being furnished artificially, and slight continued secretion occurring, digestion advances more rapidly than it otherwise would.*

I have recently undertaken some experiments to discover if this view, contrary to that of Reichmann, Boas, and others, but the result of extensive clinic experiments, is not correct; my observations, though yet but preliminary and based on only three cases, bear out my assumption. Two of these are cases of chronic gastric catarrh, the third one of nervous sub- or anacidity. In each of the former free HCl is often not to be obtained in the gastric secretion one hour after Ewald's trial breakfast. When present it exists in minute traces. In the third case, a response to tests for free HCl could never be obtained, even after this acid had been administered for months.†

CASE I.—Miss M. A.; chronic gastric catarrh, with atonic gastrectasia.

December 23, 1892.—One and one-sixth hours after Ewald's test breakfast withdrew thirty cubic centimetres of moderately well dissolved roll, containing much mucus. Congo paper browned; total acidity 18; HCl, by Günzburg's solution, present; Mintz's test = 0.009 per cent. free HCl. Lactic acid and erythrodextrin decided; acid phosphates present; lab test positive. Three other earlier observations, made at weekly intervals, substantially agreed with the above.

December 24, 1892.—Withdrew forty-five cubic centimetres one and one-sixth hours after Ewald's breakfast, at the termination of which 40 drops of dilute HCl had been taken. Contents more fluid; flow more readily through the tube. Congo paper markedly blued; total acidity 26. Günzburg's solution, decided response up to eleven dilutions. Mintz's test = 0.047 per cent. free HCl. Lactic acid = faint trace; acid phosphates present; lab test positive.

December 25, 1892.—Forty-five cubic centimetres withdrawn. Conditions same as above; 45 drops dilute HCl taken one hour before withdrawal; total acidity 30; 0.036 per cent. free HCl; traces of lactic acid; lab test positive.

CASE II.—Mrs. F.; chronic gastric catarrh, with incipient atrophy; atonic dilation.

December 24, 1892.—One and one-sixth hours after Ewald's breakfast withdrew sixty cubic centimetres of moderately well dissolved roll, with little mucus. Congo paper very faintly blued; total acidity 25. Günzburg's solution = response ceased at third dilution. Mintz's test = 0.01 per cent. free HCl; digestion test negative; lab test positive; lactic acid in abundance; acid phosphates and erythrodextrin present. In this case previous observations had been made at intervals of six to fourteen days for four months; the latter ones agreed substantially with the above, with the exception that no free HCl existed in that of six days before. The acidity then was 43, due to lactic acid and acid salts.

December 25, 1892.—One and one-sixth hours after Ewald's test breakfast and 30 drops dilute HCl, forty-five cubic centimetres withdrawn. Roll well dissolved; but little mucus. Congo paper decidedly blued; total acidity 32. With Günzburg's solution, response up to thirteen dilutions. Mintz's test = 0.077 per cent. free HCl. Digestion test positive, though retarded; no lactic acid; traces only of erythrodextrin; lab test positive.

CASE III.—Nervous anacidity. Mrs. S. R. E.

December 22, 1892.—Withdrew thirty cubic centimetres thick, only partly dissolved roll one and one-fourth hours after Ewald's breakfast. Congo paper unchanged; total acidity 6; no response to Günzburg's solution, though filtrate concentrated. Starch, erythrodextrin, and lactic acid absent; acid salts, traces; lab test negative; that for lab-zymogen decided; digestion test negative, though HCl added until it could be recognized as free acid. Three previous examinations were made in this case with similar results; not even the faintest traces of free HCl could at any time be detected. Acidity always lay between 5 and 8. The contents withdrawn were but partly fluid, and clogged the tube. Frequent examinations were impossible because of the discomfort and prostration the use of the tube occasioned in the patient, who is an hysterical neurasthenic.

December 29, 1892.—Withdrew sixty cubic centimetres of quite fluid contents one and a quarter hours after Ewald's test breakfast. One and a half teaspoonfuls of dilute HCl had been taken,—the first dose immediately after eating the roll, the second fifteen minutes later. Congo paper faintly blued; total acidity 20. Marked response to Günzburg's solution. Mintz's test = 0.018 per cent. free HCl; lactic acid absent; acid phosphates decided; erythrodextrin present; lab test negative, as before, but that for lab-zymogen decided; *digestion test*

* I have cases under observation, in which much diminished secretion of HCl is habitual, that have been taking HCl for months. The immediate relief from symptoms of indigestion always obtained by it causes them to continue taking it.

† Tests, of course, being always made several days after its discontinuance.

positive without the addition of HCl, but very retarded.

Comment on these cases is unnecessary; evidence is so apparent of the utility of HCl administered for the purpose in which its efficiency is mooted.*

Whether similar results could be obtained after a more extensive meal than Ewald's trial breakfast, especially that consisting largely of albuminoids, is yet to be determined. I am now investigating that point. In all likelihood the amount of acid administered would have to be increased, unless the direct influence of the food taken promoted additional secretion.

Still, even should the latter not occur, these experiments show that HCl, administered in medicinal doses in certain cases of even pronounced diminution in secretory activity, may be relied upon not to disappear from the stomach, contrary to the prevalent opinion, and may, therefore, in these be expected to assist digestion. But, under such circumstances, were its recognition as free acid impossible, secretion of HCl not being entirely in abeyance,—as occurs probably only in advanced atrophy of the tubules,—benefit may still be expected from the administration of HCl, and its trial should not be omitted. For, apart from its stimulating effect on the secretory function, which may tend to delay the advent of atrophy, it must also assist in the saturation of the albuminoids of the food, and thus, also, in the partial peptonization of the latter. For, as Ewald first showed, even though a certain percentage of free HCl may be essential for active and complete digestion, at least partial peptonization may occur without it, that imbibed by the albuminoids sufficing for the latter purpose.

Regarding the dose and time of administration of HCl, a word must be said. If used as an antizymotic or antifermentative, because of combinations formed with albuminoids and salts of the food, a larger amount is, of course, necessary on the full stomach than when this viscus is empty. Notwithstanding this, for obvious reasons, its utility is greatest as an antifermentative when administered after food, except in cases of total suppression of secretion, when, if resorted to, it should be ingested fasting; for after food a quantity too large for administration would be necessary to show itself in any efficient percentage as free acid. After meals, in such cases, a second antizymotic, such as one of the naphthols, should be chosen. When indicated as a secretory stimulant, HCl may be administered in small doses before meals,† or, preferably, in much larger postprandial ones, that advantage may be also taken of its ability to synergize digestion. When actually indicated for the latter purpose, it is useless to administer less than a drachm of the dilute acid, in divided doses, largely diluted in water, at intervals of from ten to twenty minutes, the initial dose being taken at the termination of the first half-hour after meals. This last is important, that saccharification of starches be not too early impeded. I regard a drachm of the dilute acid so taken as a moderate dose, and frequently prescribe upward of 2 drachms where decided diminution in free HCl exists. No harm can result from these doses in cases of subacidity. It is, perhaps, needless to remark that nothing can be expected from a single dose of 10 to 15 drops of the dilute acid, so often prescribed, combined with a correspondingly enormous quantity of pepsin. This much at least may be said of these small doses, that if no good obtains from them, at least no great harm can result, even when given, as they often unwittingly are, in that form of disordered digestion which we now know is caused by much heightened secretion of HCl.

In cases of hypersecretion of HCl,‡ with or without succorrhœa, no one remedy is of such distinct utility as lavage, especially with alkalinized water, as has already been detailed. The symptoms also often disappear in the less severe cases, without lavage, by the protracted use of antacids. These may be administered as soon after food as indications of hyperacidity appear, such as epigastric burning and pain, with acid eructations. Antacids are more distinctly useful, when symptoms do not especially demand their earlier employment, towards the completion of gastric digestion, about four or

* Case III. had taken HCl in full doses irregularly for one and a half years, with marked subjective evidence of benefit. Nausea and distress after meals were invariably relieved by it. Prior to each stomach examination, HCl was discontinued for a week; previous to the last examination none was taken for fifteen days. Evidences of its utility as a digestant are most manifest in this, the least promising of the three cases.

† Alone, or in combination with common salt or with strychnine, both of which also promote secretion of HCl.

‡ It must not be forgotten that a neurosis very frequently underlies these. This must itself receive attention if permanent curative effects are to be obtained. Among the drugs indicated, bromides, which may be combined with antacids, are often of service; especially strontium bromide, as that least irritating. Cannabis indica and cocaine, alone or in various combinations, are also beneficial for the local hyperæsthetic condition.

five hours after a varied meal, as the food is entering the duodenum. Though their administration soon after a meal is often demanded by the severity of the symptoms, the ill results of complete neutralization of the gastric juice at this time must be borne in mind. Small doses only should then be given; subsequently, benefit rather than harm results from complete saturation of the gastric acid. Neutralization of the alkaline intestinal fluids is thus prevented, and more complete duodenal digestion of starches and fats, habitually imperfect in these cases, is thus promoted.*

The utility of faradism and galvanism in the treatment of diseases of the stomach I have so lately considered elsewhere† in some detail, that little remains to be here stated. The measure of exact value of electricity, unlike that of the other therapeutic means considered, is still undetermined, experiments with the direct application being of too recent date and too limited to permit the formation of definite conclusions as to immediate value and permanence of result in all save a limited number of gastric ailments in which it has been tried. It is accepted, however, that the intragastric application of both faradism and galvanism influences the secretory, motor, and absorbent functions.

The faradic current is apparently especially valuable as a secretory and motor stimulant, and is well worthy of trial in cases of lowered acidity, whether of inflammatory or nervous origin, not yielding to ordinary treatment, and especially in cases of nervous sub- or anacidity with atony, in which, if secretion is not stimulated, motility may be, and thus, as in atrophy of the mucosa, if decided degeneration of the musculature has not occurred, the preservation of propulsive power permits fair nutrition through duodenal digestion. In simple atonic dilatation no remedy is apparently of greater value than an intragastric application of faradism, combined with other approved measures, such as lavage and the administration of HCl; a cure, with renewed secretory activity, may in most cases be expected. In cases of obstinate gastralgia, direct gastro-galvanization has seemed of service, after other measures adopted to relieve have failed.‡

In that class of cases of total anacidity or of pronounced subacidity, such as is encountered in advanced gastric catarrh, in typical atrophy of the tubules, and in certain of the neuroses of the stomach, in which there is reason to believe that the administration of HCl is useless as a secretory stimulant or as a digestant, a great deal can be done, both symptomatically and to obviate the ill results of undue retention of undigested food in the stomach,—atony and perhaps subsequent dilatation,—by the administration after meals of an active pancreatic preparation. In these cases of diminished or absent acidity, through saccharification of such carbohydrates as the ptyalin comes into contact with, through the process of partial solution of food by mastication, insalivation, and by the aid of fluids ingested, ultimately more or less completely occurs in the stomach, a certain amount of the starches in vegetable food remain bound by a glutinous envelope, the unaided intragastric solution of which may be impossible because of deficient or absent secretion. In cases such as these an active pancreatic extract, which ordinarily would be operative but for a short time if administered after meals, may be expected to exert its triple action throughout the whole digestive phase, and not only to complete the transformation of starch into sugar, but also to peptonize proteids and to digest fats. Nor is a limitation here reached for pancreatic extracts.§

In cases of enfeebled gastric digestion in which HCl is secreted in diminished amount, and yet in which peptonization, though very incomplete, occurs, HCl should not be omitted from the therapy, but a pancreatic preparation may still be given. The latter must then be administered immediately before or during the early part of the meal. Under these circumstances it will exert digestive activity for an hour or more, depending upon the amount and variety of food taken, until extinguished by the subsequent presence of traces of hydrochloric acid.‖

* Albuminoids are also incompletely peptonized in cases of hyperacidity in which hypermotility exists. This latter combination of hyperacidity and hypermotility is not uncommon, heightened peristalsis, as well as symptoms of local sensory irritation, being often originated by the irritating effects of the superacid gastric secretion. In these cases, before peptonization has far advanced, the neutralization of the gastric acid by the alkali of the intestinal mucous membrane and of the pancreatic secretion causes precipitation of both the gastric and pancreatic ferments, with permanent cessation of proteolysis.

† Hare's "System of Therapeutics," vol. ii. pp. 923 *et seq.*, 963 *et seq.* The full technique, which is simplicity itself, with the recently-devised gastric electrodes, is there given.

‡ See Emhorn's recent paper, *New York Medical Record*, January 30 and February 6, 1892.

§ Apart from their ability to predigest foods, which I shall not here touch upon.

‖ It must be borne in mind that normally, in the early stage of gastric digestion, acidity is low and due to acid salts and to a small percentage of lactic acid, so that

Should the initial dose of the latter be delayed until a half-hour or longer after a meal, a fair opportunity will have been afforded for complete starch digestion and partial solution of albuminoids.

A word remains to be said regarding the administration of pepsin. Judging from its popularity as a remedy for indigestion,* the necessity for it seems great indeed. And yet its wholesale prescribing, so general in this country,† rests upon a delusion without other foundation than total misapprehension of certain physiological facts.

Though it is unquestionable that both pepsin and acid are essential for proteolysis, and that neither can display digestive activity without the other,‡ the inutility of pepsin administration in conditions demanding a synergist to digestion is indicated by the facts that the pepsin-secreting cells, unlike those forming HCl, are very numerous and widely distributed in the stomach. As a consequence, though HCl is often either much diminished or totally absent from the gastric secretion in various affections of the stomach, pepsin is never habitually so except in advanced atrophy of the tubules, in which latter condition the administration of neither HCl nor pepsin can be of service as a digestant. In cases in which HCl is absent from the stomach, other than those of complete tubular atrophy, pepsin can still be readily obtained from its secreting glands in quantity sufficient to act as a digestant by means of hydrochloric acid, as Jaworski§ first pointed out.

Pepsin does not pre-exist in the cells of the gastric glands, but is secreted as a proenzyme pepsinogen or propepsin, requiring but the stimulating action of hydrochloric acid to promote ready conversion of the ever-present proenzyme into the active ferment.

A consideration of the foregoing, together with the additional fact that pepsin acts by mere catalysis, possessing extraordinary continuous activity, little being consumed in the digestive process, unlike the case with hydrochloric acid, shows that the modern extensive prescribing of pepsin is, to say the least, largely one of supererogation. It also indicates the *absolute* inutility and unscientific use of this enzyme alone or even without conjunction with full doses of hydrochloric acid.

The benefit, therefore, supposed to result from its administration, when not of psychical origin, due to the delusion that a sovereign panacea for indigestion is being taken, probably usually accrues either from the dietetic regimen coincidently prescribed, or from the ingredient—acid or alkali—with which pepsin is combined.

When amelioration in symptoms results after use of pepsin with an alkali,‖ such as sodium bicarbonate, with which it is often unscientifically prescribed, the case is in all probability one of hypersecretion of hydrochloric acid. In such, of course, pepsin, as well as hydrochloric acid, is already present in abundance in the gastric juice, so that neither is indicated as a remedy. The soda is, however, of great utility as an antacid. Subsidence of discomfort thus produced is, however, erroneously attributed to pepsin.

This much, however, may be said for the administration of pepsin, that, though it may be superfluous, it is also innocuous, except in so far as it is substituted for another remedy, such as hydrochloric acid, actually indicated.

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digestion of starches begun in the mouth, not being perceptibly interrupted by these conditions, continues, ceasing, however, when the acidity due to free HCl reaches a few thousandths of one per cent. This, after a generous and varied meal, does not occur for an hour or more. The period of lessened acidity is often much prolonged in conditions in which secretion of free HCl is diminished, and may continue through the whole course of gastric digestion in certain ailments, such as in nervous anacidity and in atrophy of the tubules, in which cases no free HCl, and often no traces of the organic acids, are present.

* And especially largely prescribed alone, or, as curiously, in combination with soda, bismuth, lactic acid, pancreatin, or very minute doses of dilute HCl.

† I have recently been informed by one of the largest drug-manufacturing houses in this country, the purity and activity of whose pepsin takes high rank, that pepsin is gaining in favor with the medical profession daily, so that its present consumption in this country is at least one hundred per cent. greater than it was two years ago.

‡ Except as regards the formation of syntonin and a small amount of protoalbumose by HCl alone.

§ See *Deut. Med. Woch.*, 1887, Nos. 36, 37; *Münch. Med. Woch.*, 1887, No. 33. Jaworski's diagnostic test for atrophy of the stomach is founded on this fact. Two hundred cubic centimetres of $\frac{n}{10}$ HCl solution is introduced into the stomach and removed in half an hour. Secretion of pepsin and lab-ferment, or transformation of their proenzymes into the active ferments, is so readily produced by this measure, that should evidences of these not now be found, a diagnosis of atrophy of the mucosa is justifiable. This test is described in *Verhandl. des vii. Congress. f. Innere Med.*, 1888, p. 272.

‖ An utterly incompatible combination, since pepsin is thus promptly destroyed. It requires the presence of but 0.05 per cent. of sodium carbonate to render pepsin permanently inert. (See Chittenden, *Medical News*, February 16, 1889.)

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Leading Articles.

THE TREATMENT OF CUT-THROAT WOUNDS OF THE AIR-PASSAGE.

IN an interesting paper contributed by Morris to the *Lancet*, December 24, 1892, are reported a number of cases of penetrating wounds of the neck,—that is, those which open into the larynx or trachea, in which treatment by accurate coaptation was most successful.

In all of these cases the technique of modern antiseptic surgery was carried out in its fullest detail, and by means of carefully-applied stitches the parts were restored as nearly as possible to their normal position. These stitches were of catgut, and were not passed through the mucous membrane. The head was held in a position of fixed flexion by means of appropriate bandages and propping with pillows. Healing was as complete and rapid as is usual in the ordinary incised wound. This rapidity of union allowed of rectal feeding being employed up to the time that the patient could swallow without danger of opening his wound; hence feeding by a tube passed into the pharynx or œsophagus was not necessary, and, as the result of the accurate coaptation, contracture and stricture of the air-passage or food-passage did not take place; nor in any case did there result a permanent, or even a temporary, fistula communicating with the air- or food-passage.

Quite in accord with this teaching is the advice given in "An American Text-Book of Surgery" (Keen and White). These authors hold that in cases of penetrating cut-throat wounds, if seen early, the treatment should consist in approximation of the divided tissues, the deeper parts being united with catgut, while for the integument catgut or silk may be used according to fancy. Other text-books, however, discountenance the immediate closure of penetrating wounds. Their teachings are, perhaps, founded upon the results obtained before the advent of cleanly methods, when healing of even non-penetrating wounds was rarely obtained without suppuration, when an opening into the trachea or pharynx invariably implied general infection of the wound surface, and when closing the external opening always caused infiltration of septic matter beneath the deep cervical fascia.

The admirable results obtained by Morris and others in immediate suture, and, indeed, all the teachings of modern cleanly surgery, are so clearly opposed to the encouragement of the healing of such wounds by granulation, that even the authority of well-known text-books will no longer justify the surgeon in following out such treatment.

THE THERAPEUTIC ACTION OF THIOSINAMINE.

ONE of the latest drugs claiming recognition at the hands of those who deal with surgical tuberculosis is thiosinamine. Unna (*Monatshefte für Praktische Dermatologie*, Bd. xv. No. 7) has noted extraordinary results from its subcutaneous injection.

It is a crystalline, chemical product of constant composition, soluble in alcohol and ether. In Unna's hands injection excited reaction in tubercular areas, no effect whatever being produced upon the general system.

Upon lupus its action was very favorable, ulcers skinning over and tuberculous projections disappearing.

Upon scar-tissue, particularly that causing deformity and disability by contracture, the results of the injection were extraordinary. The scar softened, yielded, and in a number of cases function was entirely restored. Thus, in one instance, where the fingers were drawn tightly into the palms of the hands, these injections enabled the patient to resume work. In another case, where the knee was flexed and useless from cicatricial contractions, the injections enabled the leg to be brought almost entirely straight. Other equally striking cases are reported.

Upon chronic enlargement of lymphatic glands the results of injection were equally satisfactory. One case of syphilitic adenitis, however, yielded not at all. In most cases, as the result of injection, there was noticed profuse diuresis. This occurred without albumin or any other pathological product in the urine.

Some cases of corneal opacity of long standing were also cured by these injections, and they seemed always to enormously increase the absorbing functions of the lymphatics. Finally, the injections increased the appetite and enabled the patients to take on fat.

In the practical application of this drug a fifteen-per-cent. alcohol solution is employed. This is filtered in order to free it from all mechanical mixture, and two injections a week are made of 2 to 4 drops of this mixture. Injections of this strength produce no more constitutional effect than would so much water. The rule to be observed in administering this medicine is that the more extensive the diseased area the smaller the dose. When there is but a moderate amount of diseased tissue the minimum dose should be given first, and the quantity should be gradually increased. The largest dose given was about 30 minims. Stopping the treatment for two or three weeks, after local reaction was no longer excited, and again beginning it, local reaction was as marked as though the remedy had not previously been administered. The injections are usually administered into the muscular tissue between the shoulders.

Unna makes for this drug extraordinary claims,—namely, a direct specific resolvent action upon local tuberculosis; marked increase in diaphoresis and diuresis; a resolvent influence upon scar-tissue far more powerful than that of any of the remedies already known; a powerful tonic effect upon the system at large.

If this remedy accomplishes a small amount of what is claimed for it, it is destined to become one of the most valuable adjuncts to surgical therapeutics.

Deformity and disability as the result of scar-formation is too often beyond the surgeon's help. Plastic operations are sometimes impossible, or if performed are often unavailing. Thiersch skin-transplantation is without permanent good effect. If, then, by means of a perfectly safe drug, deformity and disability which are beyond the reach of the knife can be relieved, a benefit will be conferred on thousands who are now suffering without hope.

If the drug proves efficient in this respect alone, it will prove of more value to the surgeon than any medicament which has been put forth in recent years. Unna's high scientific reputation justifies a thorough trial of the remedy, even though recent experience with remedial agents lauded by others of equal standing does not encourage the belief that the profession at large will meet with Unna's brilliant success.

THE TREATMENT OF TYPHOID FEVER.

THE title which heads this article is so hackneyed that the reader will probably wonder what additional statements can be made concerning the treatment of enteric fever. Perhaps it would have been better had the article been headed "Typhoid Fever not to be treated," for in the majority of cases we are convinced that entirely too much medicine is administered during the course of this disease. Those who have listened to lectures on the practice of medicine by Professor Alfred Stillé find during their active professional life that the advice which he gave them concerning the treatment of typhoid fever has been thoroughly endorsed by their own experience. If there is one disease above another in which drugs can be abused to the injury of the patient, it is assuredly this one.

There can be made no greater mistake by the practitioner of medicine than to blindly follow the directions which he may find in some text-book. In the first place, no writer can detail the minute symptoms which, together with the major ones, tend to direct his medication in a given line, and there is no case of typhoid fever, so severe as to demand the employment of drugs, which runs a course so exactly like another case that the treatment of one fits exactly into the treatment of the other. In many cases of typhoid fever there is no doubt that the business of the physician is to require absolute rest in bed, the rigid maintenance of a milk diet, and the administration of a dose or two of a remedy which may be indicated by certain symptoms when they arise. The wonderful re-

sults obtained in Europe and in this country by the employment of the cold-bath treatment of typhoid have depended very much upon the fact that the physician has avoided the administration of drugs, and has therefore neglected (if we may use such a term) to do harm to his patient.

Fever is, of course, the symptom above all others in typhoid fever which steps to the front as the one to be treated, and every case of typhoid fever that we see impresses us with the fact that the temperature should be controlled by external remedial measures rather than by the administration of drugs. If the disease is mild in its manifestations, it is only on rare occasions that the temperature will rise sufficiently to require more for its reduction than sponging the patient with alcohol or tepid water. If it does rise so high as to become a dangerous element in the case, a much colder sponging may be given; and, finally, if the temperature is persistently high, it may be necessary to give the patient the cold pack or the cold bath. Certainly, in this country, we see instances of typhoid fever running a mild yet typical course, in which the temperature is not sufficiently high to require the routine employment of the bath.

Baths cannot be employed by routine any more than can drugs.

It is a mistake also to carry out the directions which have been given in certain text-books to administer stimulants from the very beginning of the disease until convalescence is well established. While apparently good reasons have been advanced for this constant employment of alcohol, careful comparison of cases which have not received the stimulant have shown that their course through the disease has been more smooth and comfortable than in those who have received it, and alcohol, like all other drugs, should be reserved as a remedy of peculiar power and activity for combating any complications or particular symptoms which, coming on suddenly, indicate its employment. Aside from the general harmfulness of its constant administration, we are deprived of a powerful ally in the event of an emergency, if the patient's system has become, to some extent at least, accustomed to its employment. We have been directed by other writers to administer to the patient in the earlier stages of the disease, and, for that matter, through most of its course, iodine, carbolic acid, thymol, or similar substances which are supposed to act as intestinal antiseptics and are used to modify the severity of the attack. We confess that we have never seen any particular benefit arise from the employment of these remedies, unless they were employed with the idea of combating the diarrhœa, which was excessive, or to overcome tympanites, which caused dangerous distention of the abdomen. We believe that, like alcohol, they ought not to be administered, excepting when indications for them arise, and we are certain that we have seen one or two cases of diarrhœa in typhoid fever which have become worse while thymol was administered, and better as soon as the administration of the thymol was stopped. We believe, too, that the routine administration of turpentine, either in the middle of the attack of typhoid or at the end of the disease, during convalescence, is objectionable in many cases. Here, again, its constant employment simply deprives us of a valuable remedy when we most need it.

The patient suffering from typhoid fever, to be treated rationally, must be visited by his physician no less than once a day; must not be given any medicine, day in and day out, through the entire course of his disease; but must be prescribed for on individual occasions as the various aspects of the disease are presented to the observer. More important than all, the typhoid patient needs no treatment unless he has some indication for the administration of the drug. He is bound to travel through the storm which has attacked him, and the most that the physician can do is to guide him through that storm, preventing him from running upon shoals or rocks, by the removal of dangerous symptoms as soon as they arise. It may be necessary in many instances to give some simple placebo, in order that the patient and his friends may not gain the erroneous impression that nothing is being done; for it is very difficult to convince the sick man or his relatives that the disease must run a given course, and that no medicines should be given unless marked indications for them arise. Probably the best medicament to be used in this way is a mixture containing a few drops of dilute hydrochloric acid with a little pepsin, prescribed in one of its fluid forms, as, for example, Pepsin Cordial. This tends to remove the coating from the tongue and to provide digestive juice in the stomach to take the place of that which the stomach should produce, but which it never produces in fevers, more especially if they are of the asthenic type. If hemorrhage comes on, it is best to employ an ice-bag applied over the region where it is believed the hemorrhage arises, and to give internally hard pills or capsules of considerable thickness, which contain three grains of Monsel's salt or

the ferri subsulphatus of the U. S. Pharmacopœia.

For the tympanites a turpentine stupe is, perhaps, the best general treatment, particularly if a few minutes after its application the patient is given a full rectal injection of the milk of asafœtida, or soap and water, containing a few drops of turpentine, well stirred up so as to avoid any concentrated action upon the rectal mucous membrane. Under extraordinary circumstances only is it necessary to administer anything by the mouth to overcome the tympany; but, if it is necessary, doses of 5 to 10 grains of salol, or 3 to 5 grains of thymol, may be given in capsule. Compressed pills of salol, or even coated pills of salol, unless they are very soft, should not be given in typhoid fever, because, owing to defective secretion in the gastro-intestinal tract, they will probably not dissolve, and if not, act as foreign bodies upon the ulcers with which they come in contact.

It is important to remember, when sponging the patient, that this sponging will not only relieve his temperature, but, by removing peripheral irritation, may produce a comfortable sleep. More important than all, when he is sponged an ice-bag should be applied to the head to prevent cerebral congestion, and the skin should be rubbed by the bare hand of the nurse in order to bring the blood to the surface and to prevent internal congestion.

The treatment of typhoid fever upon the basis which we have already named—medication only for particular indications—will give far better results to the physician than the mere blind following of any directions which he may have been taught while a medical student, or may have read of in a text-book.

THE TREATMENT OF CERTAIN TYPES OF KERATITIS AND OF CONICAL CORNEA.

IN a recent number of the THERAPEUTIC GAZETTE we had occasion to review the chief therapeutic points found in Mr. Carter's analysis of ten thousand cases of diseases of the eye seen in private practice in so far as affections of the conjunctiva are concerned. In a continuation of this analysis (*Lancet*, December 17, 1892), Mr. Carter considers the affections of the cornea, the total number of which amounted to four hundred and ninety-two. His tables show that the female sex is more liable to superficial and interstitial keratitis than the male sex, and, as is well known, that women, much more commonly than men, are afflicted with conical cornea. On the other hand, the greater number of corneal injuries occurred in men.

In the condition denominated *superficial keratitis* by Mr. Carter, and which must include several types of inflammation of the cornea, if the disease is not severe, the treatment consists of the instillation of atropine, gr. i, and cocaine, gr. iv, to the ounce, followed, when the irritation has subsided, by an ointment of yellow oxide of mercury. It is very evident that Mr. Carter is prejudiced in favor of cocaine, but it must be a general experience that the drug, temporarily pleasant and helpful, may be ultimately detrimental to the pursuit of an uncomplicated course in many forms of keratitis. Just as good results will follow the employment of the atropine without the cocaine, and hence there is no use running the risks imposed by the latter drug. The correction of errors of refraction as soon as practicable after recovery, and always before allowing resumption of eye-work, is a wise measure, and is insisted upon by Mr. Carter. There is no doubt that the strain of uncorrected ametropia, especially astigmatism, is responsible for many of the relapses of superficial keratitis, and the prescription of suitable glasses is just as important, under these circumstances, as is the fulfilment of the evident indications for local medication and general measures. In some instances cure was hastened by closing the eye with a vertical strip of gelatole plaster, so applied as to fasten down the cilia of the upper lid to the cheek and to arrest all friction movement. The same purpose may be accomplished by a light bandage, and if this is made of some elastic material,—for instance, knitted worsted,—the even pressure which it exerts is grateful to the patient, and the immobilization of the lids of good effect in hastening a cure. Whenever photophobia becomes confirmed, it maintains, in the opinion of Mr. Carter, a morbid condition which resists the action of remedies and which requires surgical interference. He divides with a curved bistoury the orbicularis muscle at the outer canthus, using an anæsthetic, if necessary, and making a clean cut through all the tissues, conjunctiva, skin, and muscle, from the outer canthus quite up to the margin of the orbit. The free bleeding speedily ceases, and the relief is usually prompt. Arsenic is commended as the most useful drug to diminish corneal irritability, and Carter always administers it in the absence of other special indications, or when these have been fulfilled. We are in entire accord with this practice, and have seen many

cures of various types of keratitis for which arsenic deserves a full share of credit. Mr. Carter does not mention his preference for any preparation, but in our experience the best results have usually followed Fowler's solution, given in much the same way as it is administered in chorea; in a few instances arsenite of sodium has seemed the preferable preparation. If Mr. Carter fails to obtain relief from the measures thus far described, he performs peritomy.

Among the 92 cases of interstitial keratitis, 31 occurred in males and 61 in females. Among the 31 males, the right eye alone was affected in 2, the left eye alone in 5; and in the 61 females, the right eye alone was affected in 8, the left eye in 12. Hence the figures illustrate the greater liability of the female sex and the greater liability of the left eye. The fact that interstitial keratitis is more frequent in females than in males has been pointed out a number of times,—for example, by Mr. Power, as the result of his examination of the ward books of the ophthalmic department of St. Bartholomew's Hospital. But the greater immunity of the male sex from this disease does not always appear; for instance, in the statistics of A. W. W. Baker and J. B. Storey, among forty-eight cases, there were twenty-four instances of each sex. In many of Mr. Carter's cases the evidences of inherited syphilis were unquestionable, but in several the signs were wholly wanting. In these he has observed, as have other surgeons, that the type of the disease was unusually severe.

He believes that the principles of treatment should always be the same,—namely, building up the general health as much as possible, the administration of mercury internally in small doses and for long periods of time, the application of only the most soothing remedies, and, when one eye alone is affected, complete rest for the other. He deprecates the application of irritating solutions,—for example, sulphate of zinc and nitrate of silver,—and believes that in many instances they are responsible for irremediable damage to the cornea. If there is protracted photophobia, it may be mitigated by confinement to a dimly-lighted but well-ventilated room; never, however, without due care that proper exercise is accomplished. As the photophobia subsides he advises the use of spectacles filled with glass of a peacock-blue tint, which, when tested by the spectroscope, is found to exclude the red rays of the spectrum. In bad cases he urges the performance of iridectomy.

With reference to the treatment of a sloughing ulcer which occupies the central portion of the cornea, and which must leave behind, even under the best of circumstances, a central opacity, Mr. Carter argues as follows: Inasmuch as natural perforation diminishes the tension and healing takes place spontaneously, he prefers to obtain practically the same result by iridectomy. He selects for the purpose the locality in which the artificial pupil, which must in any case be needed to restore vision, seems to be most useful. Iridectomy is considered especially advisable in older patients. Sometimes the operation is rendered needless by supporting treatment and the application of eserine, together with closure of the lids by bandage or plaster. Scraping and irrigation of the ulcer as a preliminary measure is also advocated, especially in young subjects. The effect of eserine in checking a sloughing ulcer is believed to be due to its power in controlling the migration of white blood-corpuscles. When the ulcer is peripheral, bodily rest, generous diet, closure of the lids, and, when healing commences, the application of a morsel of the yellow oxide of mercury ointment are recommended. Curiously enough, no mention is made of the actual cautery, of Saemisch's section, of the various modifications of the latter operation, and of the direct application to the ulcer of certain germicides and caustics,—for example, nitrate of silver and carbolic acid,—although, as is well known, Mr. Carter has advocated elsewhere very strongly the use of nitrate of silver to check the spread of a sloughing ulcer.

His experience in regard to conicity of the cornea leads him to say that in all cases in which the affection is progressive, and in which the general condition of the patient permits it, an operation is demanded. The experience of one who has had so wide an experience in public and private practice, is of the utmost importance, and hence his method is recorded in a closing quotation:

The eye being completely cocainized and the pupil brought fully under atropine, one of Bowman's corneal trephines is set to such a depth that it will not be likely to go through the membrane, and with it a circle of tissue is cut out over the apex of the cone, of a size corresponding to the amount of projection. The circle of corneal tissue marked out by the incision is then peeled off by forceps and the exposed surface touched with a fine point of nitrate of silver, a solution of chloride of sodium being applied immediately afterwards to prevent the spreading of the caustic. The lids are closed with plaster and the patient kept in a dimly-lighted room, atropine being daily applied.

There is a resulting cicatrix on the apex, densely opaque, which resists further extension of the conicity. After all irritation has passed away, the pupil is fully dilated with atropine, the best curvature in the cornea is determined, and an optical iridectomy performed of such a V-shape that its base shall be at the pupillary margin and its apex towards the periphery of the iris. Finally, to quote Mr. Carter's apt expression, when "the eye has forgotten the iridectomy," the cicatrix is tattooed with Indian ink.

It is interesting in this connection to compare Mr. Carter's advice with the paper of Dr. Knapp, an abstract of which appears in another number, and in which the actual cautery is advocated for the cure of conicity of the cornea. It would, further, be interesting, before reaching a final judgment as to the best method of treating this affection, to have comparative statistics as to the ultimate visual result obtained in cases which are seen early and have been treated by the instillation of eserine and the wearing of high sphero-cylindrical combinations, as has been especially advocated by Thomson and Wallace, of this city, and in those on which some form of operation has been performed. Mr. Carter evidently has not much opinion of any other treatment except operative interference, and thinks it is usually vain to manage the affection as if it were progressive myopia requiring the strict enforcement of functional rest. Certainly in many cases of conicity eserine and sphero-cylinders are useless, but there is sufficient evidence to show that in selected cases painstaking efforts in this direction meet with brilliant successes, and apparently, at least, the progress of the conicity is stayed.

Reports on Therapeutic Progress.

ASCITES IN CONNECTION WITH GYNÆCOLOGY.

In the *Archiv für Gynäcologie* for 1892, PROFESSOR A. GUSSEROW, of Berlin, has an interesting article on "Ascites in Connection with Gynæcology," of which the following is an abstract:

A high grade of ascites has often been observed occurring in connection with affections of the genital apparatus or of the peritoneum, which seem to occur by preference in women. In these cases at first even the skilled diagnostician cannot say anything more than that he has a general ascites (non-encapsulated). There is a lack of the symptoms which occur in ordinary ascites; there is no œdema in other parts,—for instance, of the legs, the abdominal wall, or of the outer genitals. A patient often comes to us like a skeleton, with the exception of a very prominent abdomen, which makes us think at once of an abdominal tumor, in the modern sense of the word,—*i.e.*, a new growth. A special characteristic of this kind of case is the absence of all the ordinary factors, one or more of which are so often found to have given rise to ascites. So, then, in the first place, a careful examination must be made for disease of (1) the circulatory apparatus, (2) the liver, (3) the kidneys; and only those cases of ascites in which such etiological factors can be positively excluded come, properly speaking, into the domain of gynæcology, and it is only these, and none others, that Gusserow is discussing. Most gynæcologists are now agreed upon the best method of handling such cases. Unfortunately, the ordinary practitioner is too apt to follow the older method, a circumstance which sometimes proves very unfortunate for the patient. He still clings to the idea that an attempt should be made to ascertain the cause of the ascites by means of a puncture, or, what is worse, he is apt to make the treatment consist in further punctures, and to continue these till the death of the patient. Puncture is, in my opinion, in every way inadvisable. It is true that we, in common with other gynæcologists, for many years taught that puncture was always necessary for the diagnosis of the abdominal tumor. This idea they have now given up, and we consider it quite as absurd to make a puncture for diagnosis in the cases of general or free ascites. This new doctrine I have taught for years, and the same holds good for tapping to take away the greater part of the fluid. It used to be the custom to make a puncture with a "Pravaz syringe," and draw off a little fluid, have it examined chemically and microscopically, in order to make a diagnosis of the kinds of ascites and of its probable origin. Although much work has been done on the subject, there are many cases, and especially nearly all of these cases of "general ascites" which we are discussing now, where such an examination will give us no information at all. Better than this is tapping for the removal of the greater part of the fluid, since we thus get a better chance for palpation of the abdominal and pelvic organs, and may possibly be able to detect the cause, which was concealed by the amount of the fluid. This "chance" of making a diagnosis frequently led

to the adoption of this treatment, which, as we said, was often not the best for the patient. The reasons against this method are,—1, the uncertainty of being able to make a diagnosis, even when the fluid is drawn off; 2, the faint chance, even with the best asepsis at our command, of setting up a septic process (this latter danger has now, it is true, been reduced to a minimum, but we have, nevertheless, seen cases of erysipelas and of septic peritonitis from tapping); 3, the liability of injuring vessels, and of consequent internal bleeding; 4, the impossibility of drawing off all the fluid by tapping, and the almost certain return of the fluid, which, perhaps, will necessitate tapping again and again.

Gusserow has given up both the puncture and tapping, and prefers to make an incision about six centimetres long; then empties the abdomen of the fluid, inserts the finger, and finds out what is the local cause. One is then at once able to decide for or against an immediate or a future operation. If a radical operation is not to be done, we have at any rate drawn off all the fluid. The cases are divided into groups. To the first group belong cases of "general" ascites, as a consequence of so-called "tuberculous" peritonitis. This form appears mostly in young people. No lesion in the heart, kidneys, or liver is demonstrable, and no signs of tuberculosis are anywhere found. On laparotomy, one finds numerous nodules of a gray, reddish color both on the visceral and parietal surface of the peritoneum. Some of these cases, as it seems to us, are not cases of tuberculous peritonitis, in the modern acceptation of the term. We would prefer to call them cases of "peritonitis nodosa." The first case given was observed by him twenty years ago, before the tubercle bacillus was discovered. The patient was quite young,—twenty years of age; no signs of phthisis. There was a high grade of ascites. Patient had been tapped several times. Laparotomy performed, the fluid evacuated, and the before-mentioned nodules were found. Seeing the nodules, he made a diagnosis of tuberculosis, and gave a bad prognosis, and the patient—got well. In the second case laparotomy was performed, the fluid was evacuated, and one of the nodules cut out. The central portion of the nodule was caseous, but no giant-cells were found. (Tubercle bacilli had not been discovered, and were not looked for.) The patient recovered. The third case, which was operated upon in 1892, was somewhat similar. The microscopical examination showed small-celled proliferation, with a rich blood-supply. No giant-cells; no tubercle bacilli. In any of these three cases tapping would have been of no avail, for it would not have been possible to make a diagnosis by palpation, except by exclusion after the fluid was drawn off, and the diagnosis could only be established by opening the abdomen and cutting out one of the nodules for examination.

The second group consists of cases where the ascites was due to papilloma of the ovaries.

Papilloma of the ovary, or superficial papilloma of the ovary, consists of an abundant growth of connective tissue villi, which comes from the surface of the ovary, while the ovarian stroma itself is either found to be thickened or is nearly normal. These cases are not always distinguished from those rare cases in which a papilloma has burst, and a part of it has grown free in the abdominal cavity. The characteristics of superficial papilloma of the ovary are,—1, both ovaries are generally involved; 2, they cause a high grade of ascites, which is liable to return again after tapping; 3, they are generally too small to be palpated, even after tapping. The first observation of this kind was published by Gusserow and Eberth in *Virchow's Archiv*, No. 43, 1868. Patient, thirty-four years of age, had a high grade of ascites for a year and a quarter. Had been tapped several times (in Billroth's clinic among others). No reason for ascites discovered. Umbilical hernia developed and burst, and the patient increased the opening herself and let off the fluid. Finally the hernia became very large. A convolution of intestine had come out through the hernia, and when the patient was seen most of the small intestine lay outside the abdomen and showed signs of discoloration. Operation for hernia. Rupture of gangrenous portion of intestine. Death. Post-mortem showed papilloma of the ovary. (He also adds other cases.) These cases of rare disease of the ovary ought to convince us that where we have ascites from some unknown cause in the abdomen, we ought not to limit ourselves to puncture; in fact, we ought not to puncture at all. In none of them was it possible to diagnosticate the nature of the cause till the abdomen had been opened. In one of them, where puncture had been made before, and bloody serous fluid evacuated, we might have been led to think of carcinoma of the peritoneum, and been unwilling to operate. This admixture of blood, as a matter of fact, was the result of the puncture. In two of the cases death unfortunately followed the operation, but this must be attributed to the exhaustion of the patient by the frequent tappings. In another case death was caused by septic peri-

tonitis. Otherwise we feel sure that the patient would have been cured, since we have no instance of recurrent papilloma of the ovary where it has once been thoroughly excised.

To the third group belong those far more common cases of ascites due to carcinoma of the ovaries and the peritoneum. Here it might be asked, "Is not incision unnecessary? Here we can feel even a nodular tumor after puncture. Is it not sufficient to puncture in order to make the diagnosis." However, again we should employ incision. First, because we can never be otherwise sure that the growth is cancerous; secondly, because only by this means can we decide whether (if there is carcinoma) the ovary or uterus ought to be removed, as it is the rule to extirpate cancerous ovaries unless the peritoneum is involved, and every carcinoma must be removed, if it is in healthy tissue. If there is carcinoma of the ovaries, then by incision we can tell whether or not the peritoneum is affected, and that can only be discovered by laparotomy. It will be objected that in malignant disease laparotomy has sometimes hastened death. This by no means always occurs, and against it we can put, first, the certainty of diagnosis; secondly, if the tumor is benign, a timely operation and recovery; and to these we may add, that where the tumor is malignant, a laparotomy sometimes hinders its progress, and, even without further operation, life is prolonged. These cases fall naturally into three subdivisions. First, those in which the malignant growth could be removed (with ovaries). It must be remembered that we are not talking now of operations for malignant growths in the abdomen in general, but only of those in which general ascites was the characteristic symptom. Out of three cases, two recovered completely; the third died later of multiple sarcomata.

In the second subdivision come those cases in which the malignant growths could not be entirely removed. The first case has the following history:

M. G., aged twenty; admitted August 18, 1891; primipara. Three months before entrance she had a great deal of pain in the abdomen, which obliged her to stay in bed; was in bed four weeks. Before entrance she noticed a swelling, with no pain, but shortness of breath. The abdomen measured 110 centimetres; general ascites. No tumor felt by palpation or by vaginal examination. Laparotomy August 19; four to six litres of ascitic fluid removed. Tumor size of fist on right side of uterus, in layers of broad ligament; mass adherent. Removed with difficulty, because the tumor was of a friable, medullary material. A great deal of hemorrhage followed. Left ovary healthy.

Diagnosis.—Spindle- and round-cell sarcoma. Patient recovered from the operation, but died of peritonitis without ascites, and of marasmus, after seven months.

Autopsy.—General sarcoma of peritoneum, omentum, retro-peritoneal lymph-glands, retro-sternal glands.

The next case was one of carcinoma not connected with the genital apparatus, but adherent to the intestines; removed. Patient left hospital completely well. She was lost sight of.

Of the five cases in this category, in all of which a portion of the growth was left in the abdomen, three died, not in consequence of the operation, but on account of the rapid development of the malignant growths. Two got well (one a woman of seventy-five). What became of these cases ultimately is not known; any way, their lives were prolonged by laparotomy.

To the last subdivision belong those cases of ascites where no attempt was made to remove the tumor, but where the abdominal section was made for the sole purpose of evacuating the fluid. Of five cases, two died and three got better for the time being. These cases show that drawing off the fluid by laparotomy is often a better method of proceedure; a diagnosis can be made, and we know with absolute certainty whether an operation is indicated or not.

Lastly, we must mention cases of general ascites caused by benign disease of the genital apparatus. The first case was a woman, aged fifty-seven; nine children; came into clinic August 4, 1890; menopause one year ago; since that time had remarked a swelling in the abdomen, which caused her no particular inconvenience. For the last three weeks rapid increase in swelling, causing a feeling of tension, pain in abdomen and back, with pain on micturition, and prolapsus vaginæ. Abdomen 103 centimetres (from ascites). No tumor felt in abdomen; nothing discovered in the other organs. Laparotomy August 6, 1890. Color of fluid yellow; hard tumor fastened to left cornu of uterus, easily separated from it; right kidney a little out of place. The uterus was attached to abdominal wound. Tumor proved to be fibroma ovarii sinistri; recovery; vagina replaced. Even operation did not show the reason for so much ascites.

By tapping, of course, we could not have discovered the real nature of the tumor causing

the disease. We might, indeed, have felt the tumor, but could not have told about its malignant or non-malignant character. In another case belonging to this category we could not have had any idea of the nature of the disease by tapping. By laparotomy we were able to see plain indications for removal of the tumor, and were consequently able to cure the patient.

Professor Gusserow, in this article, expresses, we think, the views of most of us who have had much experience in abdominal surgery. With our present technique, even were the advantages to be gained by such a procedure far less than they really are, we need not hesitate to open the abdomen instead of making a puncture.

When the general practitioner meets with a case of ascites where all implication of the circulatory apparatus—the liver and kidney—has once for all been definitely excluded, it would certainly be well for him to call in the specialist before adopting the "puncture" method. Our own experience fully bears out the futility of attempting to arrive at a certain diagnosis in every case by examination (chemical and microscopical) of the fluid which has been aspirated. The only certain way is to use the hand or the eye, or, if possible, both. Again, we have seen more than one case which has come to autopsy, where the patient had died after numerous aspirations, and where the condition of things had led us to believe that a timely operation might have at least much prolonged the patient's life, even if the disease could not have been thoroughly eradicated. In these cases it seemed that valuable opportunities had been lost; and since an abdominal section not only gives the patient the best chance for complete recovery, but, when employed as a palliative measure, is more efficient than frequent tappings, it is in almost every case the better method. With respect to the "peritonitis nodosa," of which Gusserow speaks, it does not seem clear to us that these were not instances of peritoneal tuberculosis, and if this were the case, the success which attended the operations, and which we have seen confirmed in our work, would only go still further in proving his proposition. Finally, in these days, when in both medicine and surgery we are all striving as much as possible to avoid working in the dark, and wish to treat our patients for the disease they really have, and not for a hundred and one others which they might possibly be suffering from, the advantages of an absolute diagnosis can hardly be overrated.

MALAYAN FISH-POISON, OR AKER TUBA, SOMETIMES CALLED DERRIS ELLIPTICA.

Aker tuba is the root of a woody climber, largely used among the Chinese for killing insects, and in some portions of the world for killing fish. From this root a milky sap exudes, which, after drying, is mixed with clay and ground into a fine powder with pieces of refuse, shrimps or small fish. This mass is then made into small balls, which are thrown into the sea.

Soon after they are devoured by fishes the fish rise to the top of the water, where they are caught by the watching fishermen.

In the *Pharmaceutical Journal and Transactions*, LEONARD WRAY gives an account of the way in which this poison is used and of the results of his experiments.

It would be interesting if some of the drug could be obtained for physiological experiment upon the higher animals.

One or more dugout canoes, according to the size of the stream to be operated on, are partly filled with water and the pounded roots. The men then upset the boat or boats into the river, and allow them to drift down with the current, while with nets and spears they secure the fish as they rise stupefied to the surface. It is a most destructive method of fishing, killing, as it does, all the fish, little and big, for some miles along the water-way. The young fish succumb much more readily to the poison than the larger ones. In ponds and pools the destruction of the fish is even more complete than in a river, and the Malays say it is years before they become tenanted with fish again. In all instances, besides the actual effects of the poison, the fouling of the water by the decomposition of the bodies of the fish and animals of all sorts has to be taken into consideration.

By experiment, Dr. Wray finds that twenty grains of the green root will render one gallon of water sufficiently poisonous to kill fish. The first effects of the poison on a fish are to cause it to make violent efforts to escape, jumping out of the water, rapidly swimming about, etc. Then the breathing becomes labored, and there is a sluggishness and uncertainty of movement. The next symptom is an increasing inability to maintain the ordinary position; then the fish turns on its back, rises to the surface, and the breathing becomes slower, and finally ceases. When fish have reached the stage of turning on their backs and rising to the surface, they will, if put into fresh water, slowly revive, and, after the lapse of some hours, appear little, if any, the worse for the experiment. Mr. Wray

has three times poisoned a fish, allowing intervals for it to revive, and it has lived in an aquarium for days, or even weeks, afterwards.

The poisonous principle is not, as might be expected, an alkaloid. The author tried the usual methods for separating these substances, but the residues from the exhaustion of both acid and alkaline aqueous solutions by ether and chloroform did not possess toxic effects. After many experiments he found that the poisonous principle, for which Wray proposes the name "tubain," is a very brittle, reddish-brown colored, resinous substance, quite insoluble in water, paraffin oil, and benzine, but soluble in alcohol, ether, and chloroform. It has a specific gravity of 1.1662; is dissolved by nitric acid, forming a bright dragon's-blood red solution with carbonate of sodium. When heated in a glass tube it melts, boils, and then carbonizes, a brown-colored oil condensing on the cool part of the tube. It burns with a large smoky flame, leaving a quantity of carbonaceous ash. Fractional distillation and other means would perhaps break up the resin into several distinct substances, only one of which may be the virulent body; but very limited laboratory appliances prevented his carrying on the investigation further than has been done.

Tubain is most conveniently prepared by crushing the chopped root and digesting it, with little heat, for some hours in alcohol acidulated with hydrochloric acid, filtering and evaporating on a water-bath at a low temperature until a gummy substance separates. When all the spirit has evaporated and water only remains, the tubain may be removed and pressed into a mass. This can then be washed by kneading in hot water, and further purified by resolution in alcohol and repeating the above process. The result will be the resinous substance above described. The roots should be digested a second time in fresh alcohol. The dried root yields 9.42 per cent. of tubain by the above process. When tubain is dissolved in spirits of wine and left to stand, a granular deposit of a dirty-white color is formed, which is only sparingly soluble in cold alcohol, but is dissolved by hot alcohol, chloroform, and ether. This granular body redeposits on evaporation from ether as a pure white, crystalline, tasteless mass. From its solution in chloroform it is left as a clear white varnish. When heated it melts into a transparent white fluid, which, on an increase of heat, turns brownish red and partly distils, unaltered. This substance, when freed from all traces of tubain, is not poisonous to fish. The acid aqueous solution left after the decomposition of the tubain, and which contains presumably any alkaloids present in the roots, is also not poisonous.

One part of tubain in 350,000 parts of water proves quickly fatal to fish, and water containing the extraordinarily small quantity of one millionth—*i.e.*, 1 grain in 143 pounds of water—will kill fish in from one-quarter to half an hour, according to species. There is a considerable difference in the susceptibility of various kinds of fish to the effects of the poison, and the siluridæ, or catfishes, appear to be the most tolerant of any. It has been stated that fish killed by aker tuba are sometimes unwholesome, but when we see the extremely small amount of poison which is required to produce a fatal result, it seems improbable that any ill effects can be produced by eating fish so killed; the more so as tubain distils over with the steam from boiling water, and would be, in part at least, eliminated in cooking. The crushed roots, when boiled with water in a retort, yield an opalescent distillate, smelling strongly of the root and actively poisonous. The Malays say that fish killed by means of aker tuba very quickly go bad; but, unless the poison acts as a chemical ferment, which seems unlikely (as tubain added to milk causes no change, and, if anything, rather retards its turning sour), it is more probable that the idea arises from comparing fish caught alive and remaining so in the bottom of the boat for some hours, perhaps, before they actually die, with those killed by the root at the time they are taken out of the water. In the case of fish, the poison is evidently absorbed by the gills, and passes at once into the circulation of the blood, which probably accounts for the infinitesimal doses which are enough to produce lethal results, for with most poisons this is by far the most effective way of administering them. Owing to the insolubility of tubain, it may be eaten by a fish with impunity. I have seen a fish eat enough to kill a score without any ill effects; but when a solution of it in spirits of wine is added to water, although the tubain is at once precipitated as a bluish-white cloud, still it is then active. Presumably, the fine state of subdivision enables it to be assimilated by an animal organism. In the sap of the plant it exists as an emulsion; and the sap, having no tendency to coagulate, may be diluted to any extent with water. By this means it becomes an extremely attenuated emulsion. When the roots have become dry, this only takes place to a very limited extent, and a solvent is then necessary to bring the tubain into a form in which its poisonous qualities can be applied.

There appears to be no reason why we should not take the hint from the Chinese market gardeners, and apply the poison to the destruction of the many insect pests to which garden and greenhouse plants are subject.

From what has been said as to the nature of the substance, it will be apparent that the dried roots would be of little or no use for the purpose, and the tubain must, after being extracted from the root, be converted either into an emulsion or into some chemical combination easily dissolved in water. By the aid of a small quantity of spirit it may easily be emulsified with soap, which, on solution in water, presents the poison in an active form. He thinks it may also be saponified if mixed with oil before it is treated with alkali. His attempts in this direction have been only partially successful as yet. In both cases potash or soft soaps would be the most convenient vehicles with which to combine it, as they are so much more readily miscible in water than the soda soaps. The extraction of the poison from the roots in a large way would not be costly, as by suitable apparatus the spirit could be distilled off and used over and over again; and, doubtless, some cheaper method of extraction could be found. The plant grows readily in the Straits settlements. The roots are dug up from time to time, and the stumps and suckers are replanted, and soon throw out new roots. The stems also contain the poison, though in not so great a proportion, but still worth extraction. It is probable that the best time of year to harvest the root would be in January, as the plant is then at rest and nearly leafless. This is a subject which seems to be well worth the attention of the makers of insecticides, and of floriculturists and horticulturists generally.

TREATMENTS OF DUJARDIN-BEAUMETZ.

The following plans of treatment are recommended by PROFESSOR DUJARDIN-BEAUMETZ in the Hôpital Cochin (*Les Nouveaux Remèdes*, August 24, 1892):

a. FOR A MODERATE DIABETES.

1. Before breakfast and before dinner, about .34 gramme of carbonate of lithium and 2 drops of Fowler's solution are to be taken in a glassful of Vichy or Vals water.

2. If the polyuria is marked, after each meal 1 gramme of antipyrin is to be ordered in a little black coffee.

3. Every morning the body should be sponged with warm water and cologne; after the bath, a brisk dry rubbing with a suitable horse-hair brush.

4. The mouth should be rinsed out in the morning, and after breakfast and dinner, with the following mixture:

> Boric acid, 25 grammes;
> Phenic acid, 1 gramme;
> Thymol, .25 gramme;
> Water, 1 litre.

To which should be added:

> Tincture of anise seed, 10 grammes;
> Essence of peppermint, 10 drops;
> Alcohol at 90°, 200 grammes;
> Tincture of cochineal, q.s. to give the mixture color.

The portion to be used of this solution should be mixed with an equal amount of water.

5. The following regimen should be rigorously adopted: An exclusive diet of eggs, all kinds of meat, game, mollusks, fish, and cheese. All green vegetables, such as carrots, turnips, and beets, may be allowed. Fatty articles of food must be insisted upon, such as sardines, Spanish mackerel, and herring, all those fish prepared in oil; lard, butter, goose-fat, liver-fat, ham-fat, pork, sour-krout, etc. Soups, such as plain bouillon, cabbage soup, bouillon with poached eggs, onion soup. All these soups should be taken without bread. Bread, such as gluten bread, or bread without crust, or soja hispida bread, or else 100 grammes of white potatoes cooked in water. To sweeten drinks, saccharine should be used. Tea, maté, coffee, and kola are very good. All feculent material is to be avoided, such as pastes, bread, pies, pastry, cake, macaroni, sugar or sugary dishes, chocolate, confectionery articles, fruits, milk, brown sauce, farina. For drinking purposes, especially after meals, old red wine, Bourgogne or Bourdeaux, mixed with Vichy or Vals water; a little amount of pure wine, but no brandy or any other liquors.

6. All bodily exercise is favorable, but it should not be carried so far as to produce fatigue. Walking in the open air, mountain excursions, gymnastics, fencing, gardening, carpentering, all are good. Massage is equally serviceable.

b. TREATMENT OF OBESITY.*

1. Every morning a sponge-bath with warm water and cologne, followed by a brisk dry rubbing and massage.

* This treatment is to be established only after a careful examination into the condition of the heart and circulation.

2. Take every morning a glass of Rubinat, Carahana, or Villacabras water.

3. At the end of each meal take a dessert-spoonful of the following solution:

℞ Iodide of potassium, 15 grammes;
Distilled water, 250 grammes.

4. Follow rigorously this diet: *First meal*, a slight breakfast at eight o'clock; a cup of chocolate and 20 grammes of bread. *Second meal*, lunch at noon; 2 eggs or 100 grammes of meat, 100 grammes of green vegetables, salad, 15 grammes of cheese, any amount of fruit, 50 grammes of bread, and a glass and a half of liquid (light white wine mixed with Vichy water). *Third meal*, dinner at seven o'clock; no soup, 100 grammes of meat, 100 grammes of green vegetables, salad, 15 grammes of cheese, any amount of fruit, 50 grammes of bread, a glass and a half of liquid (white wine with Vichy water); abstinence from all drink between the meals; suppression of coffee, tea, brandy, and other liquors; exercise out-doors.

c. TREATMENT OF DILATATION OF THE STOMACH.

1. Take before each meal from 1 to 3 cachets, to be prepared as follows:

℞ Salol,
Salicylate of bismuth,
Bicarbonate of sodium, of each, 10 grammes.
M. and divide in 30 cachets.

The following prescription is also of advantage:

℞ Benzonaphthol,
Salicylate of bismuth,
Hydrate of magnesium, of each, 10 grammes.
M. and divide in 30 cachets.

2. If constipation is present, take at night, in a half-glassful of water, a dessertspoonful of the following combination:

℞ Pulverized senna leaflets,
Washed sublimed sulphur, of each, 6 grammes;
Powdered fennel,
Powdered anise seed, of each, 3 grammes;
Pulverized cream of tartar, 2 grammes;
Liquorice powder, 8 grammes;
Powdered sugar, 25 grammes. M.

3. Every morning a sponge-bath with warm water and cologne, to be followed by a brisk dry rubbing.

4. Observe the following regimen of diet: Seven-hour interval between breakfast and dinner; do not eat between meals. All articles of food are allowed except game, fish, mollusks, and cheese. The following must particularly be insisted upon: *a.* Meats must be well done, well roasted over an open fire (chicken, beef, mutton, tongue, fresh pork). *b.* Feculent articles must be in a pure state (potatoes, red beans, lentils, peas), and so must other substances, such as macaroni, cake, etc. *c.* The green vegetables (carrots, turnips, beans, peas, etc.) must also be well cooked. *d.* Fruits should likewise be cooked. Bread, in the form of toast. No liquid soups. For drinking purposes, take at every meal 300 grammes of light white wine well diluted with water. No pure wine, nor any amount of liquors. Never take anything between meals.

THE TRANSFUSION OF NERVE-SUBSTANCE IN THE TREATMENT OF THE INSANE.

In an able article, A. CULLERRE (*Gazette Médicale de Paris*, August 27, 1892) discusses the above subject, formulating the following conclusions: 1. The transfusion of nerve-substance (I employ the method of Arsonval to sterilize the liquid) is well borne by deranged persons, as well as by tuberculous subjects, exercising an almost immediate stimulating action on the nutritive functions. 2. The first sign of this stimulation is an increase of the appetite to such an extent that some patients appear unable to satiate their hunger. This action may be of importance in the treatment of mental weakness, to combat, in certain cases, sitiophobia, and I have seen it do good in many patients who systematically refused nourishment. 3. The reconstituent effects are rapid, muscular debility disappears, corpulence is developed, and all the organic functions become regular. 4. The psychopathic state, in curable cases, has been often ameliorated for hours after the injection, but a permanent improvement has not been obtained. All in all, I do not consider this conclusion as a definite one, since the majority of the cases treated have not exhibited a favorable prognosis from the beginning. It is the general rule, however, that, together with the improvement of nutrition, there occurs a similar modification in the mental state.

THE APPLICATION OF RAPID AND CONTINUOUS VIBRATIONS IN THE TREATMENT OF NERVOUS DISORDERS.

CHARCOT (*Le Progrès Médical*, August 27, 1892) has called attention to the good effects produced by the application of rapid and continuous vibrations in the treatment of

nervous disorders. By means of an apparatus provided with an electro-motor mechanism, rapid oscillatory movements are produced, similar to those caused by a wagon in motion. This novel application has done good service in certain forms of neuralgia, migraines, insomnia, and neurasthenia. A recent apparatus, in the shape of a casque or helmet, has been constructed by Larat and Gautier, assisted by Gaiffe. It is simple in construction, easily managed, and portable. The small motor makes about six thousand revolutions in a minute, quite regular, producing a continuous vibration, which is transmitted to the cranium through the internal plates of the casque. The application is well borne by a healthy subject. A *séance* of ten minutes, given at six o'clock in the evening, is sufficient to produce a calm sleep, lasting the whole night. Eight or ten *séances* are sufficient to cure a case of insomnia, provided this is not due to organic disease of the brain. Boudet has seen relief produced in three cases of migraine by the vibratory treatment, and of three neurasthenic patients, two were cured and one, in whom the application was interrupted, was ameliorated. Charcot believes that, on the whole, vibration thus applied is a powerful sedative to the nervous system. The vibratory movements act particularly through the encephalic mass, and, in support of this, the writer mentions a case in which the predominant spinal symptoms, such as weakness of the lower extremities, sexual impotence, all disappeared, without a tendency to recur, after the application of the vibratory movements. In this case static electricity had done no good. Specialists have for a long time employed, in the treatment of certain forms of mental disease, transcerebral currents. It is well known that rapid vibrations propagated to the encephalon bring about good results. The author refers to another case,—*melancholia*, accompanied with marked depression,—in which quite favorable results were obtained. In this instance, the vibratory treatment seemed to arrest the march of the disease, which, before the treatment, exhibited no sign of retrogression.

THE TREATMENT OF EPILEPSY BY EXCITO-MOTOR MEDICAMENTS.

Apropos of the recent experiments of Pasteur, in regard to the treatment of epilepsy with the attenuated virus of rabies, and of a communication to the Société de Biologie by Féré on the action of picrotoxine in epileptic subjects, PIERRET has read before the Société des Sciences Médicales de Lyon (*Lyon Médical*, August 28, 1892) a preliminary note on the treatment of the malady in question by the excito-motor medicinal agents, like picrotoxine, belladonna, and strychnine. The author condemns the use of these medicaments in the disorder under consideration, and promises to discuss the subject extensively at an early date.

KOUMISS.

Papers upon this subject have from time to time appeared in the journal, but it is curious to note how careful most of the authors have been to evade giving detailed particulars regarding the difficulties that have to be surmounted in the manufacture of aerated milk preparations.

The original koumiss is the Russian, made from mare's milk, which is used for the obvious reason that it is less rich in casein and fatty matter than cow's milk, and therefore far more easy of digestion.

Mare's milk contains approximately 1.70 per cent. of casein and 1.40 per cent. of fatty matter, whereas cow's milk contains 4.55 of casein and 3.70 of fatty matter.

Cow's milk is probably universally used in England, and it answers the purpose admirably in most instances, but a better preparation is obtained by diluting with water to reduce the percentage of casein, etc.

Mare's milk contains 8.75 of milk-sugar, cow's milk only 5.35; it is, therefore, necessary to add some of this to our preparation. The following formula answers very well. Take of—

Fresh milk, ℥xii;
Water, ℥iv;
Brown sugar, ʒiiss;
Compressed yeast, gr. xxiv;
Milk-sugar, ʒiii.

Dissolve the milk-sugar in the water, add to the milk, rub the yeast and brown sugar down in a mortar with a little of the mixture, then strain into the other portion. Strong bottles are very essential, champagne bottles being frequently used, and the corks should fit very tightly; in fact, it is almost necessary to use a bottle machine for the purpose, and once the cork is properly fixed it should be wired down. Many failures have resulted because the corks did not fit properly, the result being that the carbonic acid gas escaped as formed and left a worthless preparation. It is further necessary to keep the preparation at a moderate temperature, and, to insure the article being properly finished, the bottles are to be gently shaken each day for about ten minutes to prevent the clotting of the

casein. It is as well to take the precaution of rolling a cloth round the bottle during the shaking process, as the amount of gas generated is great, and should the bottle be of thin glass or contain a flaw, it may give way. Some few days elapse before the fermentation passes into the acid stage, and when this has taken place the preparation is much thicker. It is now in the proper condition for allaying sickness, being retained by the stomach when almost everything else is rejected.

Malted koumiss can be made as follows:

Extract of malt, ℥iss;
Compressed yeast, gr. xx;
Brown sugar, gr. x;
Milk, to champagne pint.

Euonymized koumiss is a suitable preparation for use in some cases of derangement of the liver in which food is rejected and an hepatic stimulant is required, combined with a slight sedative, 3 drachms to every 16 ounces of the diluted milk; then proceed as with ordinary koumiss.

Coca koumiss could be made by the addition of cocaine hydrochlorate to the milk, and would be specially adapted in cancer of the stomach.

Aerated whey, which is a very refreshing drink in cases of fever, and much used in some parts of Germany, could also be manufactured on the same principle as koumiss.

Peptonized koumiss.—The easiest way of getting a satisfactory preparation is by the adoption of the following formula:

Papaine, gr. vi;
Milk, to champagne pint;
Compressed yeast, gr. xx;
Brown sugar, ℥iii.

This does not keep long.

Meat and malt koumiss would constitute a serviceable preparation in consumption.

Chemists dealing in these preparations should impress upon the minds of their customers the necessity of keeping the bottles in a cool place, and the advisability of using either champagne or soda-water taps, so that the bulk of the gas may not escape with the first draught.

SULPHITE OF ZINC AS AN ANTISEPTIC IN TYPHOID AND CHOLERA.

Many years ago Dr. Charles R. C. Tichborne introduced sulphite of zinc as a salt especially suited for general use as an antiseptic. At that time the cost of producing this salt was against its being used as a commercial sanitary agent. The manufacture of the sulphites has, however, assumed of late years a commercial aspect; in fact, there is now reason to suppose that sulphite of zinc can be, and is, manufactured at a less cost than any other zinc compound.

A few years ago, Dr. F. Heuston, of the Adelaide Hospital, and Mr. Tichborne, also applied the zinc sulphite to fabrics for antiseptic dressings, as it can be deposited in the fibre of the material in a semi-soluble condition by double decomposition. It therefore specially lends itself to such an application. In this form it has been extensively used in hospitals, and experience shows that not only does it possess the combined antiseptic properties of a zinc salt, such as the chloride, but also the special antiseptic action of the sulphites, and yet with all we have the healing properties of oxide of zinc.

The zinc sulphite is a very insoluble salt, being soluble to the extent of 150 grains per gallon only, at ordinary temperatures, but this amount is sufficient to keep up a permanent germicide condition in any supernatant fluid, chiefly due to the fact that the sulphite is always absorbing the available oxygen and passing into the more soluble sulphate.

Some time ago Mr. Tichborne conducted experiments with excreta of typhoid patients, and as these experiments required some considerable caution, made use of sulphite of zinc for the purpose of controlling the development of typhoid germs. The permanent character of this control was striking. If we consider for a moment we shall perceive that this partial insolubility of the antiseptic is of special value when disposing of the excreta of typhoid and cholera patients. Sewage of this nature always contains a certain amount of insoluble matter, which of a necessity carries down with it, by virtue of the attraction of mass, the infinitesimally small, but yet solid, germs. The retarding influence of any soluble disinfectant must, therefore, be of a more or less temporary nature, because in a flow or stream of water, such as would be found in a sewer, there must always be a tendency for the disinfectant to be washed away from the more solid portions with which the germs are chiefly associated. But in the use of an antiseptic such as sulphite of zinc, the supernatant liquid is permanently antiseptic, while the more dangerous septic deposits are still subject to retarding influence. Specimens were exhibited which showed this action in a marked manner. They were procured by inoculating sterilized gelatin with typhoid excreta, some with and some without zinc sulphite. When placed side

by side in the incubator, the results were strikingly different.

Attention is directed to the manner in which the germs have been volatilized, so to speak, in the tubes in which they have been formed. The germs have not only been carried to the under surface of the cotton-wool plugs with which the tubes are closed, but have even penetrated to a slight extent the loose under surface of the wool. The carriage of these germs can hardly be explained by the "raft" theory of Professor Tyndall, because in these sterilized tubes we have no atmospheric dust to act as rafts. The germs are probably carried by the clouds of volatile liquids, just as we see on a much larger scale rain-clouds able to carry the comparatively large and coarse particles of soot.

THE RESULTS OBTAINED FROM THE USE OF BROWN-SÉQUARD'S METHOD IN GREECE.

P. S. Pampoukis (*Revue Méd. de l'Armée*, July, 1892; *Revue Internationale de Bibliographie Médicale*, September 25, 1892), of the Bacteriological Laboratory at the Medical School of Athens, has been the first physician in Greece to employ the method of Brown-Séquard. Pampoukis used a substance prepared by himself from the testicular juice of rabbits and cocks, guinea-pigs being quite rare in Greece. The author first reported to the Medical Society of Athens the case of an old man, suffering from neurasthenia, in which the injections produced satisfactory results. This led the writer to try the method in other diseases. During the month of June last he made over 600 injections in the treatment of different disorders, comprising 6 of neurasthenia, 11 of spermatorrhœa, 3 of impotence, 4 of insomnia, 2 of frequent urinary emissions (due to a neurosis of the bladder), 2 of cardiac palpitation (without organic lesion), 2 of paraplegia, 1 of agarophobia, and 1 of locomotor ataxia. Of all the patients, those suffering from spermatorrhœa, insomnia, palpitations, and neurosis of the bladder were completely cured. Of the neurasthenic cases, only 3 were cured, 1 was slightly improved, and in the other 2 only negative results were observed. In a later contribution (*Le Galien*, July 24, 1892) the author states that while in some persons, especially those suffering from spermatorrhœa, the lymph produced a cure by a stimulating action upon the cord, in others not affected with such a disease it caused orgasms. In concluding his valuable study, the author states that the substance prepared by himself has never produced erythematous inflammation or abscesses, and only a slight pain lasting a few hours after the injection.

THE EMPLOYMENT OF CHLORHYDRATE OF HYOSCINE IN THE INSANE.

In a recent thesis, Lodde (Paris, 1891; *Revue Internationale de Bibliographie Médicale*, September 25, 1892) discusses the therapeutic action of this important alkaloid in the treatment of the insane. The drug, in the form of the *chlorhydrate*, according to the author, is useful in the treatment of acute and subacute maniacal states, in delirium tremens, in the delirium of hallucination, in general paralysis associated with maniacal excitability, and in the *pre-* and *post*-exciting periods of epileptic crisis. The medicament may be employed with advantage in agitations of traumatic origin, and, indeed, in all those cases in which a maniacal condition is to be calmed down. Hyoscine is not to be considered as a curative agent for mania; and, on the contrary, certain states, such as cardiopathies and the cachectic conditions, may be looked upon as contraindications for the use of the drug in question. Hyoscine may be employed hypodermically, this being an advantage, especially in maniacal cases. The dose of the medicament may vary from ¼ to 1 milligramme, and even, in rare cases, to 2 milligrammes. The chief physiological effects of hyoscine on normal individuals are mydriasis, a certain amount of muscular relaxation, slowing of the circulation, suppression or diminution of the salivary secretion, and a tendency to sleep. These effects are produced in from ten to twenty minutes, after a preliminary stage of excitability. These physiological properties explain the prompt and powerful action of the alkaloid in maniacal subjects, in whom it generally produces calm or sleep. This effect lasts from six to ten hours. According to the author, the drug deserves a wider attention, and more extended studies are necessary in order to determine more accurately its full range of action.

ETHYLATE OF SODIUM AS A DERMAL AGENT.

Gamberini and Maroni, of Bologne (*Semaine Médicale* and *Journal de Pharmacie et de Chimie*, August 15, 1892; *Revue Internationale de Bibliographie Médicale*, September 25, 1892), have tried this new combination, and found that it exercises a favorable influence in certain forms of cutaneous disease. A two-per-cent. ointment of the salt, in olive oil,

produced a cure in a case of psoriasis in the course of twenty days. Good results were obtained in a case of Paget's disease, locally applied, in aqueous solution of the strength of ten per cent.; also in the treatment of indolent ulcers of various origin. Curetting, followed by the application of dressing with the latter solution, produced a cure in two cases of erythematous lupus.

LYSOL IN THE TREATMENT OF BLENNORRHAGIA.

V. Carvallo, of Chili (*Boletin de Medicina de Santiago de Chile*, June, 1892; *Revue Internationale de Bibliographie Médicale*, September 25, 1892), recommends the use of lysol in the treatment of blennorrhagia, having obtained satisfactory results from the use of the drug. The author has tried the medicament in acute cases, as well as in those of three or four months' standing. He has exclusively employed it in injections, the drug producing a sensation of burning, lasting but a short time. The pain disappeared on the second or third day of the treatment. The secretion diminished after the first injections, and generally disappeared at the end of the week. The author recommends the following formulæ:

1. ℞ Solution of lysol (one per cent.), 100 grammes; Sydenham's laudanum, 3 grammes. M.

2. ℞ Solution of lysol (one per cent.), 100 grammes; Chlorhydrate of cocaine, .50 gramme. M.

Either injection is allowed to remain in the urethra for about four or five minutes. The number of injections may be put at three per day, at the beginning, these being gradually increased in frequency according to the requirements of the case.

PICROTOXINE AND CORIAMYRTINE IN THE TREATMENT OF COLLAPSE.

It is well known that collapse is the result of cardiac and respiratory troubles, these more generally following disturbances of the centres of circulation and respiration. Koeppen (*Arch. für Exp. Pathолog. und Pharm.*, xxix. p. 327, 1892; *Revue Internationale de Bibliographie Médicale*, September 25, 1892) has, by means of narcotic agents, produced symptoms analogous to those of collapse, and, under such circumstances, he has studied the action of picrotoxine and coriamyrtine. For instance, frogs and rabbits were narcotized and paralyzed by chloral, urethane, and paraldehyde; picrotoxine, administered hypodermically, produced no notable change either on the sleep or the paralysis. In rabbits, after having produced a fall of the arterial pressure and a slowing of the respiration by an intravenous injection of chloral, a rise of the pressure and an acceleration of the respiration were caused by picrotoxine administered intravenously also. Similarly, picrotoxine lessens the fall of pressure produced during chloroform narcosis; and the same result is effected during narcosis by urethane, paraldehyde, or amylene hydrate. In these latter instances, however, the action of picrotoxine is less marked, owing to the fact that the effect on pressure produced by the narcotics mentioned is also less pronounced. In the majority of cases, picrotoxine is able to stimulate both the respiratory and circulatory centres, and may, therefore, prove to be an efficacious remedy in the treatment of collapse. Coriamyrtine possesses the same properties, and perhaps in a more decided degree. Given in minute quantities to chloralized animals, it produced acceleration of the respiration and caused a rise of the arterial pressure. The author concludes that, similarly, coriamyrtine may exercise a decidedly favorable action on the centres of both the respiration and the circulation, arousing the activity of these when enfeebled by pathological causes, as in cases of collapse.

ON A NEW COMBINATION AGAINST TAPE-WORM.

Duhourcau (*Les Nouveaux Remèdes*, October 8, 1892) recommends a mixture of the green extract of male fern, chloroform, and castor oil against tape-worm. It may be given in capsules, and the maximum dose of the extract of male fern may be put down as 1.20 grammes, this, and even a lesser quantity, being sufficient to cause the expulsion of the entire worm.

THE PHYSIOLOGICAL AND THERAPEUTIC ACTION OF TESTICULAR JUICE.

Rubens Hirschberg (*Bulletin Général de Thérapeutique*, October 15, 1892) has made a careful study of the physiological and therapeutic effects of testicular extract. His observations were made on two cases of locomotor ataxia and two of cerebral neurasthenia. The juice was obtained from Brown-Séquard's laboratory, through D'Arsonval. The injections were made hypodermically and under the best antiseptic precautions. The usual dose at each injection was two cubic centimetres. The

remedy employed was given in two portions. The first portion was administered to three patients; of these, one suffered from feverish reaction and an exaggeration of the local phenomena. The other portion of the liquid was given to three of the patients, in all of whom it produced fever. In the fourth case the juice did not cause a feverish reaction, and only an aggravated condition of the local manifestations. The symptoms produced by the injections are, then, according to the author, local and general, the first causing an aggravation of the local phenomena, as happened in the two ataxic patients, in both of whom the remedy produced untoward effects. The author believes that the testicular juice causes these phenomena through a congestion of the spinal cord. In advanced cases of locomotor ataxia the posterior columns of the cord are in a feeble state, and cannot, therefore, tolerate an increased amount of blood. The writer further contends from this that the administration of the juice in such cases, even if the remedy does not produce a feverish reaction, is fraught with evil, owing to the provoked local hyperæmia. In this respect the action of the juice may properly be likened to that of strychnine on the central nervous system. The juice, in fact, no matter what precautions may be taken in regard to its preparation and administration, may contain in solution, according to Hirschberg, the substance capable of producing in man a septic fever. He therefore suggests the making of a thorough examination of all the organs of the animals used in the preparation of the juice, in order to avoid the transmission through it of pathogenic germs.

EUCALYPTEOL—A NEW DERIVATIVE OF THE ESSENCE OF EUCALYPTUS.

Lafage, of Neuilly (*Bulletin Général de Thérapeutique*, October 15, 1892), gives his experience in regard to the physiological and therapeutic action of a new derivative of eucalyptus, prepared by Anthoine. This substance is obtained by the action of hydrochloric acid on the essence of eucalyptus, and has received the name of *eucalypteol*. It is a *hydrochlorate*, and occurs in lamellar crystals, having an aromatic odor resembling that of camphor, and a peculiar taste. It is soluble in ether, chloroform, alcohol, petroleum, and in the fatty and volatile oils, but is insoluble in water. It melts at 50° C. and decomposes at 115° C. Administered to rabbits, dogs, and guinea-pigs, in doses of from 1 to 2 grammes hypodermically, or in from 5 to 10 grammes by the stomach, in the course of twenty-four hours, the new substance produces no untoward symptoms, and, on the contrary, it is well borne. It is especially eliminated by the bronchial and salivary secretions, and partly also by the urine and the intestinal juices. On the secretions and excretions of the intestinal tract the remedy exercises a *disinfectant* and an *antiseptic* action. This action has been confirmed by the author by the results obtained in a preliminary clinical investigation. The drug was found advantageous in acute and chronic bronchitis, exerting a prompt and rapid influence on the mucous membrane. Eucalypteol also acted effectively in certain pulmonary affections, proving that the action of the drug is not limited to the bronchi. Bacteriological examination showed that the remedy likewise possesses antiseptic and disinfectant properties, and its trial in intestinal disorders gave satisfactory results. The author has commenced a series of clinical observations at the Cochin Hospital, the results of which will, undoubtedly, appear at an early date.

METHÆMOGLOBINURIA INDUCED BY QUININE.

In a note, A. Corre, of Brest (*Bulletin Général de Thérapeutique*, October 15, 1892), contends that all the salts of quinine are capable, especially when administered in large quantities, of producing a condition of methæmoglobinuria, giving rise, through a renal insufficiency, to an hepatic overwork and a consequent biliary poisoning. It is, therefore, prudent always to prescribe the salts of quinine with great caution. For those predisposed to the action of quinine, the author advises the co-administration of this drug and bicarbonate of sodium. For the consecutive jaundice, if it does appear, it is best to administer oil of turpentine, a remedy that the writer recommends in the treatment of the worst cases of icterus.

THE ACTION OF CUTANEOUS REVULSION.

François Franck (*Revue de Thérapeutique Médico-Chirurgicale*, October 15, 1892) contributed to the French Association for the Advancement of Science, at a recent meeting, a note on the local and general effects produced by cutaneous revulsion. From the results of an experimental research, the author appears to have demonstrated that, besides a local congestion, cutaneous revulsion causes a marked elevation of the arterial pressure consequent on a vaso-motor spasm, especially of the abdominal

vessels. Further experiments on the pulmonary and cerebral circulation have shown that the lungs and the brain are protected from congestion by the same mechanism which influences the abdominal viscera, and that, at the same time, antiphlogosis tends to produce in them similar phenomena; that the normal heart is in great part sufficient to do the work imposed upon it under such circumstances. The author believes, finally, that sudden, violent, and painful revulsions (as with the red-hot iron) are contraindicated in those cases laboring under a pathological condition of the blood-vessels, these being endangered by rupture due to an excess of pressure; and, similarly, in cases of heart-disease, such as myocarditis, particularly aortic insufficiency. The pure nervous effects, inhibitory and dynamogenic, are the good effects to be expected in cases of syncope, of pain, and nutritive changes of organic disease.

THE ACTION OF GUAIACOL CARBONATE.

In a study of the action of this new combination of guaiacol, J. BRISSONNET (*Répertoire de Pharmacie*, October 10, 1892) argues that in the economy of phthisical subjects it exerts on the toxine products of tuberculosis a modifying and eliminating influence. It is to the toxine products that, in the course of the malady, the fever, the night-sweats, and the disturbances of digestion and the general health are due. If such agents are destroyed, all these symptoms disappear. Guaiacol carbonate acts on tuberculin, the latter substance being modified by losing its sulphur, which enters into combination with the guaiacol. Thus the blood is freed, for a longer or shorter period, from the action of the toxine products. This theory, according to the author, may also be applied to the explanation of the mode of action of other medicinal agents, such as antifebrin, phenacetin, the various alkaloids, etc., which, like guaiacol, enter into combination with the toxines. In this sense, the author considers guaiacol, and particularly the carbonate, an energetic medicament against phthisis, without, of course, excluding the possibility of finding a more heroic remedy.

THE PHYSIOLOGICAL ACTIONS OF KOLA AND CAFFEINE.

A study of the comparative actions of kola and caffeine, particularly on the muscular system, has been made by EDOUARD HECKEL (*Répertoire de Pharmacie*, October 10, 1892). Caffeine in a crystalline form, kola powder, and kola *rouge* or *kolanine*, so called by the author, were used in the experiments, using Mosso's ergograph. The tracings obtained were also compared with those previously obtained by Dubois and Marie. The results of Heckel showed that the action of caffeine was of short duration, and the amplitude of the contractions quite limited under its influence. With the powder of kola the duration of the contractions was more prolonged, and the amplitude of these larger and stronger; their diminution was regularly progressive. With the kola *rouge* or *kolanine*, the amplitude of the contractions was still better, and their diminution took place more slowly; a suspended scale showed a more lengthened conservation of muscular energy. The author concludes, and in corroboration of the experiments of Dubois and Marie, that the stimulating influence is due to the *kolanine* or *kola rouge*, in which the total amount of caffeine mixed in it is in a nascent state. The difference between the tracing of the kola and that of pure caffeine may be attributed to the influence of this latter existing in a nascent state in the former.

THE EARLY REMOVAL OF PLEURITIC EFFUSIONS.

In the *Albany Medical Annals* for July, 1892, DR. HERMAN C. GARDINER contributes a paper upon this subject. He states that it has been his custom to aspirate very early in all cases of moderately large pleuritic effusion, not waiting for the subsidence of fever or the efforts of nature, or the slow absorbing or eliminating power of drugs. In not a single instance has he regretted acting promptly in these cases. In the twenty cases which have been under his immediate care during the past five years, and treated in the manner above described, all save two have done well. Fourteen of the number required but one aspiration, with, as a result, perfect expansion of the lung, return of the dislocated heart, and no retraction of the chest-walls. Three cases required a second aspiration, which operation removed very much less fluid than at first, with the same result as the above. Three cases required repeated aspirations, one of which made a good recovery; the other two, which were tubercular from the onset (as was proved by finding the bacilli in the sputum), did well as far as the aspiration was concerned, but died later of tuberculosis.

The author treated cases in the ordinary manner with diuretics, absorbents, blisters, iodine, salts method, restriction of fluid, etc., and never

noted as rapid result as by early aspiration. Fever, unless very high, which is unusual, unless due to tuberculosis, is no contraindication to an early aspiration. In most instances the fever subsides after the operation. The lung expands perfectly, the viscera regain their normal position, and the patient usually makes a prompt recovery.

THE COLORATION OF THE URINE OF PATIENTS SUBMITTED TO THE INFLUENCE OF METHYLENE BLUE.

According to the investigations of J. ETIEVANT (*Répertoire de Pharmacie*, October 10, 1892), the green coloration of the urine produced after the ingestion of methylene blue is not due to a mixture of this substance and the urine, but occurs as the result of a reduction of the methylene blue by the organism on the one hand, and by the urine on the other, the difference of color between the medicament and the urine interfering but slightly in the phenomenon exhibited. The more active the intra-organic reductions the easier is the urine colored; on the contrary, the more intense the oxidation the greater the blue coloration produced. Blue methylene is thus transformed, in the organism, as well as in the urine after the emission of this, into a green leucoderivative or leucobase, the ultimate product of this reduction being the same as the green dimethylphenylene. The formulæ of these two bodies differ only in that the two atoms of hydrogen in the green dimethylphenylene are replaced by an atom of sulphur in the methylene blue. Thus:

$$NH<\begin{matrix}C_6H_4N(CH_3)_2\\C_6H_4N(CH_3)_2\end{matrix}+H_2S+O_2=$$

$$NH<\begin{matrix}C_6H_3\text{——}N(CH_3)_2\\C_6H_3\text{——}N(CH_3)_2\end{matrix}>S+2H_2O.$$

AN ANTISPASMODIC.

L'Union Médicale for July 12, 1892, gives the following prescription of GILLETTE's as an antispasmodic:

℞ Dover's powder, gr. iv;
Cherry laurel-water, ʒi;
Simple syrup, ʒi.

A coffeespoonful of this may be given every hour to children suffering from spasmodic croup. If this does not produce quiet, the patient may receive a rectal injection composed of chloral hydrate, 8 grains; infusion of valerian, 2 ounces; which may be repeated a second time, if very necessary.

If the croup persists and is obstinate, Gillette states that quick relief may be obtained by the use of the following solution, given by means of an atomizer in the mouth:

℞ Hydrochlorate of cocaine, gr. iss;
Bromide of potassium, gr. xv;
Bitter-almond water, ʒiss;
Distilled water, ʒvi.

The bedroom in which the child is ill should have its atmosphere moistened by the setting free of steam, and it is well to apply to the lower extremities and to the chest mild mustard-plasters for counter-irritation. If necessary, the child may be given an emetic to rid it of any mucus which may be occluding the air-passages.

A PRESCRIPTION FOR CHRONIC BRONCHITIS.

FERRAND recommends the following prescription for the treatment of chronic bronchitis with inflammation:

℞ Purified tar, gr. xv;
Dover's powder, gr. xxii;
Powdered benzoin, a sufficient quantity to make 20 pills.

From one to four of these may be given each day. Twice a week a purgative should be administered. Counter-irritation should also be applied to the chest by means of ammonium. It may also be useful for the patient to inhale the fumes of muriate of ammonium.—*L'Union Médicale*, July 18, 1892.

TREATMENT OF CHOREA BY EXALGIN.

In an article published in the *Journal of Nervous and Mental Diseases* for July, 1892, DR. CHARLES L. DANA, of New York, reports the results obtained by him in the treatment of chorea by exalgin.

He has used it in sixteen cases, in most instances employing no other remedy whatever, and, as a rule, believes it has a specific effect upon the ordinary chorea.

The dose which he administers is 3 grains three times a day, which may be increased to 3 grains five times a day for a child five years old.

In cases associated with anæmia, he administers iron with exalgin. He believes exalgin to be a very much better remedy for chorea than is iron. The exalgin is best given in capsules, each of which contains two grains. Sometimes he orders three of these capsules on the first day, four on the second day, and five on the

third day; and, finally, he administers three grains five times a day, if needed. He points out, however, that the drug must be given carefully, and that its excessive use will cause prostration. He has seen it produce acute anæmia and cyanosis, but never any dangerous symptoms. The indications for its use, he thinks, are distinctly limited to ordinary chorea of subacute form of Sydenham, not chronic chorea, habit chorea, convulsive tic, or chorea major.

THE TREATMENT OF BOILS BY BORIC ACID.

L'Union Médicale quotes ALISON as having obtained good results in the case of general furunculosis by the administration for eight or ten days of from 10 to 15 grains of boric acid a day, divided into two doses. At the same time, four or five times a day, the inflamed areas were washed with a hot solution of boric acid, in the strength of four per cent. Between the applications of this lotion compresses were applied to the diseased parts, which had been wet with the same solution of boric acid. In this way he claimed to have been able to relieve the boils which had already formed, and to do much towards preventing other outbreaks. By this means he thinks it possible to avoid surgical intervention.

BROMIDE OF STRONTIUM IN THE TREATMENT OF VOMITING.

In the *Practitioner* for July, 1892, CORONEDI, the assistant in the laboratory of materia medica at Florence, contributes a short article on this subject.

After quoting to some extent the literature of this comparatively new remedy, he proceeds to the detailing of his own experiences in regard to the influence of the bromide of strontium for the relief of vomiting and gastric pains.

He differs from Sée, who thought that the drug had little power in nervous vomiting. Coronedi then details several cases of vomiting due to various causes, treated with strontium with considerable success. Thus he found it serviceable in the vomiting of pregnancy, in acute gastric catarrh complicating hysteria, and in dilatation of the stomach. In the case of omental carcinoma with marked pyloric stenosis, the remedy was of no value. It was of value, however, in cases of hysterical vomiting, and in one of incomplete abortion with a retained placenta and septicæmia.

He then discusses the question as to whether the value of the bromide of strontium depends upon the bromine or upon the base, and, after pointing out that the strontium salt contains a smaller percentage of bromine than most of the other bromides, concludes that both the bromine and the strontium must exercise an influence when this compound is administered.

The dose which he gave averaged about 30 grains a day. It will be remembered that much larger amounts of the bromide of strontium may be given than this.

THE TREATMENT OF TYPHOID FEVER BY INTESTINAL ANTISEPSIS.

In the *British Medical Journal* for July 23, 1892, DR. RICHARD CATON gives the results of his treatment of forty-six cases of enteric fever. The average age of his patients was twenty-three and a fraction years. He finds that the average duration of pyrexia of twenty-two cases treated by antiseptics was 25.3 days, and in sixteen cases treated by the expectant method, 37.9. The most striking point in the two groups is, however, the immunity from relapses enjoyed by the cases which were treated by intestinal antisepsis. Of twenty-two cases treated by antiseptics, the average days of relapse were 1.8; while among the sixteen cases who recovered under expectant treatment and whose charts are preserved, the average days of relapse were nine. Those treated by the expectant plan remained in the hospital on an average fifty-two days; those treated by the method of antiseptics remained in the hospital on an average forty-six days.

Dr. Caton has been very much impressed by watching the good effects of antisepsis in the treatment of typhoid fever from day to day. He quotes the paper of Dr. Wolff, who has treated one hundred cases with naphthalin; the average febrile period was 24.4 days, and the mortality two per cent. He also quotes Dr. Gramshaw's results of one hundred and sixteen cases treated with carbolic acid, and no deaths. Caton also quotes Bouchard's statement that in the years 1854 to 1885 the mortality from enteric fever at the Lariboisiere Hospital was 21.4.

Since 1885 the treatment pursued has been quinine with intestinal antisepsis. The mortality has fallen to 11.7 per cent.

Dr. Caton administers naphthalin in the form of a pill; 6 or 8 pills, containing each 3 or 4 grains of the drug, are given daily. He has also given alpha-naphthol in similar amounts. All his cases are put on a light diet, consisting of milk and lime-water, which was replaced by beef-tea when there was flatulence or diarrhœa.

Alcohol was administered when the first cardiac sound became muffled and the pulse soft, from two to six ounces of brandy, in small divided doses, being given with the food. In the event of excessive temperature, he employed sponging with tepid water. He avoids the use of antipyrin and acetanilide.

During convalescence the ordinary diet is very slowly restored. If constipation is present and intestinal antiseptics are being given, he does nothing to unload the bowels for six or seven days. If it is needful to interfere, a glycerin enema is used.

TREATMENT OF INSOMNIA.

In the *Journal of Nervous and Mental Diseases* for July, 1892, DR. JOSEPH COLLINS, after quite a long article upon this subject, concludes as follows:

As to which of these two hypnotics (sulphonal and chloralamide) we shall choose in the treatment of any given case of insomnia, we must be guided largely by certain factors. Where we wish to get very rapid action, we can probably do so more efficaciously by the use of sulphonal dissolved in boiling water and taken as hot as possible, the drug in this way becoming at once absorbed, and sleep frequently occurring in from fifteen to twenty minutes. In conditions where chloral is indicated, but some intervening symptoms contraindicate its use, such as weak heart and respiration, as in the asthenic stage of acute disease, or in diseases of the heart and lungs, chloralamide can be substituted with safety and with good results.

[This teaching is directly opposed to the experience of all therapeutists. Sulphonal generally takes five or six hours to act.—ED.]

THE TREATMENT OF NON-PURULENT EXUDATIVE PLEURISY BY SALICYLIC ACID OR THE SALICYLATE OF SODIUM.

We have already published in the THERAPEUTIC GAZETTE from time to time articles recommending the employment of this drug in the removal of these pleural exudates.

In the *Revue Internationale de Bibliographie Médicale* for July 10, 1892, is an abstract from the *Upsala Medical Journal* of an article by KOSTER, founded upon an experience in thirty-three cases.

The results which he obtained were all of them decidedly favorable.

In only a few instances did the drug fail to produce favorable results. He believes that by the administration of these remedies it is possible to aid in the absorption of peritoneal exudations.

The dose which he gives is 30 grains three or four times a day. This dose is certainly very large if it is to be continued for any length of time, and, as we understand the treatment, it is necessary that the drug should be continued for two or three weeks.

ON THE TREATMENT OF DIABETES.

In the *International Medical Magazine* for July, 1892, there is published a lecture, delivered at the Woman's Hospital of Philadelphia, by DR. F. P. HENRY, in which he makes the following remarks in regard to treatment of diabetes.

The absolute exclusion of starchy and saccharine food is the ideal treatment of diabetes, and if this can be persisted in for at least three months, a certain number of cases undoubtedly may be cured. All kinds of meat, except liver and oysters, may be allowed, and all vegetables except those which contain starch. A desideratum in the dietetic treatment of diabetes is a substitute for bread, the want of which is keenly felt by patients. Some of the samples of so-called gluten bread have been found, on analysis, to contain more starch than ordinary bread. Potatoes contain less starch than bread, and a baked potato is probably the least injurious form of amylaceous food.

In most cases, at least in early stages of the disease, sugar will soon disappear entirely from the urine if the patient be placed upon an exclusive proteid diet. If such a regimen be persisted in, however, digestive disturbances are almost sure to arise, and, under such circumstances, the glycosuria will reappear. Professor Bufalini, of Siena, has found that the tolerance of a strictly albuminous diet becomes much greater if thymol be coincidently administered. The good effect of this drug in such cases is solely through its well-known action as an intestinal antiseptic. Bufalini believes thymol to be not only useful but necessary in cases of diabetics placed upon an exclusively proteid diet. There may be other intestinal antiseptics the use of which is indicated in diabetes, but there is none, in the opinion of Bufalini, equal to thymol. When albuminuria coexists with diabetes, an exclusive meat diet cannot be persisted in under such circumstances; the diet should be largely or exclusively composed of milk and buttermilk. There are different opinions as to the use of milk in uncomplicated

diabetes, but when this disease coexists with chronic nephritis, the least injurious food is undoubtedly milk.

There is an undoubted relation between gout and diabetes mellitus, and when the patient afflicted with the latter is of gouty diathesis, good results will follow an alkaline treatment. The alkaline lactates, recommended by Cantani, the salicylates, or the carbonates, may be used alternately.

Opium is a drug of undoubted efficacy in this disease, and one for which there is a remarkable tolerance. It is not only of negative benefit by obtunding the senses of thirst and hunger, but it seems to have a positive effect in diminishing the excretion of sugar.

To resume, the alkalies, opium, and intestinal antiseptics (above all, thymol) are the only drugs upon which reliance should be placed in the treatment of diabetes mellitus, and these are subordinate to a strictly proteid diet.

THE USE OF JAMBUL IN GLYCOSURIA.

MR. C. F. BRITTO, in the *Indian Medical Record* for July 1, 1892, contributes a note as to the use of this remedy in glycosuria.

A woman, aged fifty-two years, came under his care suffering from debility, excessive thirst, pruritus vulvæ, and a large carbuncle on the extensor surface of the left forearm. There was also marked polyuria. She was passing in each twenty-four hours about ten pints of urine of specific gravity of 1045, with no albumin.

Britto first prescribed ½ grain of codeine three times a day, and kept the patient upon a restricted diabetic diet. He then stopped all codeine, and gave jambul, 1 drachm, three times a day, and allowed her her usual food.

After this treatment had continued for a week, the patient was forced to urinate only three times during the night, instead of five times as before the administration of the jambul. The week after, he stopped the powdered jambul and gave the fluid extract, a teaspoonful three times a day. At the end of a week of this treatment urination only occurred once during the night.

The carbuncle, having been opened and properly treated, healed up kindly. The ultimate result of the case, after some months' treatment, is that she is passing about three pints of urine that has a specific gravity of about 1029. The urine contains sugar.

An advantage which Britto claims for this jambul treatment is that no special dieting is required. Unfortunately, diabetes is a condition which differs so in different cases, that while a drug may be of great value in one instance, it is practically useless in another.

UNTOWARD EFFECTS OF ANTIPYRETICS.

A. R. PATTISON reports in the *Indian Medical Record* of July 1, 1892, three cases of untoward effects from the use of acetanilide, phenacetin, and antipyrin respectively.

A boy, three months old, suffering from remittent fever, with a temperature of 102.4° F., and marked head-symptoms, for which the bromides and diaphoretics were given without effect, received one ½-grain dose of acetanilide, which produced no reduction in temperature. An hour later a second dose of 1 grain was given. In fifteen minutes the child was in a condition of collapse, which lasted fifteen hours. There was cyanosis, cold extremities, subnormal temperature, and partial inability to swallow.

The second case was that of a boy of two years, who received two doses of phenacetin of two grains each. Profound collapse ensued. The child was well nursed, and given a few drops of milk and brandy alternately, and hot bottles were applied to the body to restore warmth. Perspiration was not present.

The third case was that of an adult suffering from hemorrhagic small-pox, who was given 15 grains of antipyrin every three hours. He became collapsed, and died soon after the third dose was given. Post-mortem examination showed all the organs to be healthy, with the exception of hemorrhagic nephritis.

In the *Indian Medical Record* for June, 1892, there was reported the case of a Hindu who received 120 grains of acetanilide and recovered.

The cases reported by Pattison seem to evidence total disregard of all rules for the use of these remedies as to the age and disease of the patients and the size of the dose.

ABSORPTION AND EXCRETION OF IRON.

H. DRESER, in reviewing, in *Schmidt's Jahrbücher*, No. 6, 1892, several articles on the absorption and excretion of iron, remarks that the form of iron chosen by A. Socin for his experiments is that of nuclein iron, as found in yolk of egg. As, according to Bunge's investigations, the yolk contained its whole amount of iron solely in this form, Socin fed dogs on pure egg yolk to determine whether iron would be secreted in the urine in consequence. As the urine under normal conditions contains

only slight traces of iron, the presence in one case of one-fifth grain, and in the other of one-ninth grain of it, after the feeding with yolk of egg, shows that iron in the form of "hematogen" is reabsorbed by the intestine, but only to a small fraction of the amount given, while the larger part is passed off in the fæces in its organic form.

R. Oddi e Dom experimented upon dogs with lactate of iron. The dogs were first deprived during nine days of all food containing iron; this reduced them gradually to a chlorotic condition, which was indicated by the decrease in the size and number of the red blood-corpuscles, the change in the quantity of hæmoglobin in the blood, and other morphological changes. Now lactate of iron was given in quantities of 4¼ grains for eight days, causing a complete restoration of the impoverished blood to its normal condition. The author sees in this a proof that the system can assimilate even inorganic iron.

Dr. Gottlieb has experimented to determine the organ which excretes iron. The experiments of many writers have led to the unanimous belief that the kidneys are certainly not the chief organs for the excretion of iron. Gottlieb first fed dogs on food containing no iron; then, having reduced the amount of iron in their systems, he gave subcutaneous injections of iron—nearly 1½ grains daily—for nine days in the course of the following twenty-eight days; nearly the whole amount injected reappeared in the fæces. This shows that the excretion of the iron introduced into the lymph fluid takes place in the intestinal canal.

As the gradual excretion did not keep pace with the reabsorption, so the daily injection would have led to an accumulation of iron in the blood, causing symptoms of poisoning, if the metal had not been deposited in some other tissue, and thus withdrawn from general action. Which organ forms the chief place of deposit for iron? According to Gottlieb's experiments, the greatest amount of iron was found in the liver (twenty to sixty-five per cent. of the amount injected). It appears probable that the iron is gradually returned to the blood from the liver, and that the epithelium of the intestinal canal possesses the power of appropriating this iron as it gradually enters the circulation and excreting it.

METHYL VIOLET IN DIPHTHERIA.

Dr. Jaenicke (*Therapeutische Monatshefte*, July, 1892) describes his experiments with methyl violet upon the bacilli of diphtheria. His results were most encouraging, and he believes that a most important addition is thus made to the remedies for this dread disease. The action of the methyl violet upon the bacilli is rather one preventing development than a directly destructive one. The membrane when painted with the violet retains the color for from two to five hours. The application should be renewed as soon as the color disappears from the membrane, the intervals gradually becoming longer, until all the coating has disappeared.

The taste is unpleasant, but not positively repugnant. Local irritation and slight signs of poisoning he has not observed, even when repeated applications had been made upon small children.

Unfortunately, Jaenicke has had, as yet, few opportunities to test his remedy. He treated, among others, a two-year-old child whose symptoms were very bad, the membrane being painted clear into the post-nasal cavities. On the third day of treatment the child had so improved that, without an inspection of its throat, it would have been pronounced a well child.

THE SO-CALLED CURARE DIABETES, AND THE ASSERTED PROTECTIVE ACTION OF THE LIVER AGAINST THIS POISON.

Dr. H. Dreser reviews (*Schmidt's Jahrbücher*, No. 6, 1892) a German book by K. Sauer with the above title. He says Zuntz had proved that the diabetes caused by curare can be avoided when the respiration of the animals is conducted with special care. In 1885, Gaglio published experiments, according to which the curare received in the stomach, as it reached by absorption the portal vein and the liver in specially large quantities, poisoned them, with symptoms of glycosuria, even if the skeletal muscles did not yet appear to be harmed. Sauer repeated these experiments, and believes that, as long as the general condition of the animal is not disturbed, glycosuria never occurs, even after comparatively large doses. Sauer shows that the liver does not exert any special protective action in the interest of the whole organism, by comparing the intensity and rapidity of the poisonous symptoms, first, by injection into a vein of the trunk, and, secondly, into a branch of the portal vein. In the last case no difference could be discovered from the first.

It was further shown that when injected into the rectum curare was poisonous in smaller doses than when injected into the stomach.

As to the inactivity of curare from the stomach, it is probably due to the action of the acid gastric juice, which divides it into inactive products.

THE USE OF ETHYLENE CHLORIDE AS A LOCAL ANÆSTHETIC IN DERMATOLOGY.

The manifold small, but often very painful, operations necessary in the treatment of skin-diseases rarely appear to require anæsthesia. Dr. S. Ehrmann, however (*Wiener Medizinische Wochenschrift*, No. 26, 1892), tells how conveniently and successfully ethylene chloride may be used. Its action arises from its uncommonly rapid evaporation, which cools the surface moistened by it. The evaporation is most rapid when it is sprayed upon the skin. When thus applied, there is first a pricking sensation; hyperæmia occurs first, then the spot becomes white. If the anæsthesia is complete, the skin is as white as chalk and opaque. That is the best time to operate; if it does not occur, anæsthesia can be tested with the finger. The spot must become white, cloudy, and opaque as wax. The anæsthesia lasts from one to two minutes. The surrounding mucous membrane is best protected by a compress laid upon it.

To anæsthetize chafed surfaces, Ehrmann recommends the use of cocaine, applied upon absorbent cotton, in five- to ten-per-cent. strength, to anæsthetize the superficial part (because the etheylene chloride would cause such a place to burn at first), and then to proceed with the ethylene chloride to obtain deeper-reaching anæsthesia. In this absolutely painless manner Ehrmann treated lupus with scarifications and curetting, especially the scattered nodules. He had nine patients who could in no other way be induced to allow local treatment.

The spray also did good service in opening carbuncles. In bubo, even when the skin was very thick, the incision could be accomplished without pain. But he has chiefly used the ethylene chloride spray in scarification and the opening of acne papules and pustules, and believes it has a wide field before it.

A NEW METHOD OF TREATING FEVER.

Dr. Soltau-Fenwick (*Berliner Klinische Wochenschrift*, No. 31, 1891) says the use of cold baths in the treatment of fever has been crowned with such extraordinarily favorable results that any hesitancy in their use on a fitting occasion would be considered by many authorities as great carelessness.

Although it is generally admitted that in cases of hyperpyrexia a cold bath is the best remedy, yet its use is often involved in insuperable difficulties; there are so many cases in private practice where it is either impossible to obtain a large enough bath, or to place such a piece of furniture in the sick-room. Again, to bathe a helpless patient requires at least two persons, sometimes three; but among the poor it is often impossible to obtain even one reliable nurse. Finally, it is well known that this treatment requires the use of much care and consideration, and even in reliable hands is not entirely free from danger,—requirements which can seldom be met without the presence of the physician. This is, doubtless, the reason why cold baths have never come into general use in medical practice in England, where the physicians appear to prefer those antifebrilia which are simpler in their use, although less energetic in their action.

Dr. Soltau-Fenwick describes a mechanical contrivance now in use in the London Hospital and elsewhere in the treatment of moderate cases of fever. He is in possession of the reports of 100 cases of typhoid fever and 153 cases of inflammation of the lungs in which this treatment was used. The results were so favorable that he proceeds to describe the treatment in detail, first minutely describing the mode of washing or sponging the patient in bed, with water at 116° F., giving a table showing the reduction in temperature obtained.

The ice-cradle is an arrangement by which a constant cold current can be brought into immediate contact with the surface of the body, in this manner reducing its heat by a direct withdrawal of heat. This method was originally used by Dr. Samuel Fenwick as a substitute for the cold bath in the treatment of typhoid fever, and has been used for this purpose for several years in his wards in the London Hospital with the most satisfactory results. The ice-cradle consists chiefly of an iron apparatus, rods of iron arching over the bed from side to side, with several small pails half filled with ice suspended from the middle above the patient. The patient lies on the bed, covered simply with a thin, untransparent muslin sheet, and the ice-cradle is placed above him, covered with a light covering. If a feeling of chilliness is complained of, a warm bottle may be placed at the patient's feet. The ice in the pails must be renewed occasionally, and it has been found well to wrap cloths around the bases of

the pails, so that the moisture condensed on them may not drop down on the patient. A very good substitute for a cradle can be made from a piece of strong wire or two wooden hoops sawn through the middle. Beneath such an arrangement a patient can lie several days, the pails and the warm flasks at the feet simply being replenished. Although the average temperature in the cradle can rarely be brought more than one or two degrees below the surrounding atmosphere, still, this is usually enough to produce a reduction of several degrees in the temperature of the body and, what is of great importance, to keep it at this reduced point. In certain cases, where the fever was slight, or when no ice could be obtained, the cradle was used without pails, and under these circumstances it proved that the circulation of the air was sufficient to produce a gradual reduction of several degrees in the temperature of the body. To obtain the best results from the use of the ice-cradle, attention must be called to several absolutely necessary particulars. In the first place, the cradle must be plenty wide enough, for nothing is more sure to prejudice the patient against the treatment than the use of an apparatus which is so narrow as to preclude the free movement of his limbs. In the second place, it is advisable to keep the feet warm with hot bottles, for in this way any feeling of chilliness can be prevented and at the same time the general comfort of the patient greatly increased. In the third place, a free circulation of the air through the cradle is absolutely necessary. If this is not secured, the ice melts quickly, the temperature in the cradle advances, and the apparatus is of little or no value. Finally, it is advisable in all cases to take the patient's temperature every three or four hours, and to dispense with the apparatus when the temperature has fallen below 100° F., or the patient shows the slightest inclination to chilliness. When these precautions are observed, the patient usually becomes accustomed to the treatment rapidly, and many severe cases of typhoid fever have lain under the cradle for from ten to fourteen days, with the most happy results. In glancing at the results obtained in the use of this apparatus for ten years past in the London Hospital, it should be noted that a temperature of 103° F. was a signal to use the cradle; fevers of a lower grade were treated simply with the sponging. In all cases the temperature of the patient was taken every three hours, and treatment regulated accordingly, so that when the temperature of the body sank below 103° F. the cradle was removed and the patient covered lightly. As soon as the temperature rose again to 103° F. the apparatus was used again. Tables are given which show that, while the action of the ice-cradle is relatively slow, its result is lasting. Although useless in cases of hyperpyrexia where a direct fall of temperature is imperative, it proves of extraordinary value in cases where the fever is less intense, and where a lasting action on the temperature during a considerable time is indispensable. Of the 100 cases treated, only 6 died. During the same period 1014 other typhoid fever patients were treated in the same hospital; 147 of these died, or an average of 14.5 per cent. The ice-cradle was used with just as good results for inflammation of the lungs. Previous to its use the average mortality of these cases was twenty-three per cent. Cases treated with the ice-cradle and spongings, according to the severity of the fever, only had a mortality of 10.5 per cent.

THE USE OF CARBONIC ACID IN THE TREATMENT OF CHOLERA.

Professor Rosenbach (*Berliner Klinische Wochenschrift*, 1892, Nos. 34 and 36) refers to C. Fränkel's discovery of the power of carbonic acid to prevent the development of cholera bacilli, and the use of fluid carbonic acid in the treatment of cholera. Experiments in the use of injections of fluid carbonic acid in the stomach and intestine for therapeutic purposes were made in such numbers by Oliven and Rosenbach as to leave no doubt as to the safety of the treatment and the possibility of quickly inflating the intestine from the rectum or the stomach by means of an œsophageal tube. The only drawback which might interfere with the action of the treatment is the resistance which might be offered by the ileo-cæcal valve and the pylorus to the entrance of the gases as far as the small intestine; but this can be overcome by the use of morphine and frequent repetition of the treatment. In his second paper Rosenbach recommends, instead of giving the opium internally, to inject the opium (extractum opii, .5 (gr. $\frac{8}{1}$), to water, 10 (f℥iiss), 1 to 2 syringefuls' dose). At the height of the epidemic such a solution could be intrusted to the helpers and nurses, they being obliged to keep a record of the number of injections made, and not allowed to give more than two injections independently. He adds that he would like to recommend something which cannot be obtained from the druggist,—that is, the conviction that the cholera is not a contagious disease, and that the patient does not endanger his surroundings; or, in other words,

in a place where the epidemic rages, the neighborhood of the patient is not more dangerous than another place. If this conviction could obtain a hold, then the rules for disinfection could be spared, which regard the patient as the sole cause of the sickening of others, and thereby destroy pity for the sufferer in the interest of self-preservation. The patient is not the focus of the disease, but the conditions of our surroundings, climate, and soil, which we, unfortunately, do not understand, but which make of one place a cholera locality, and the human organism finally unable, under the unfavorable conditions, to maintain its normal functions. Rosenbach thinks the fear of bacilli will make many an anxious heart ere his view obtains a footing. He thinks the solution of the question is: "No fear, and hence no infection, but the creation of proper conditions of life and of nourishment."

PRECAUTIONS AGAINST CHOLERA.

How tenderly, minutely, and wisely the paternal German government advises its children during the present cholera epidemic may be seen from the following rules for avoiding the pestilence, issued by the Imperial Bureau of Health, which are published in the *Therapeutische Monatshefte*, September, 1892:

1. Keep your presence of mind in the danger; avoid too great anxiety, for it clouds your clear judgment. Only the man who thinks clearly can make proper use of the precautions against danger.

Maintain cleanliness in your person and surroundings. Discretion, temperance, precise cleanliness, prove the best protection against disease.

Hold firmly to your ordinary regular mode of life. Avoid festivities and assemblages of people.

Avoid medicines as long as you are well.

Visit the sick only when your duty calls you.

Avoid intercourse and close contact with persons who come from cholera regions.

Do not leave your home in order to escape the disease. Consider that you may be in greater danger in travelling, and living under altered conditions in a strange place, than while leading a careful, regular life at home.

2. Do not put other objects besides food and drink in your mouth,—*e.g.*, the fingers in turning through a book, pen-holders, lead-pencils, etc.

Drink as little water as possible, and only such as you know to be above suspicion.

Pure spring-water is, as a rule, unsuspicious. Water from deep pipe-wells and from closed pipes, if taken from open waters, such as have been subjected to a genuine filtering, is safe. (Small house filters, unless frequently changed or cleaned, are rather harmful than useful.)

Water from rivers, ditches, ponds, flat, open, or poorly-covered springs, also from springs which are near dirt or dung sites, is suspicious during cholera epidemics. All washing and rinsing, as well as pouring out of dirty water near springs, may be dangerous to health.

Suspicious water during the prevalence of, or near, cholera is only safe to use for drinking, washing the face, rinsing the mouth, washing utensils used for food and drink and the like, after being boiled one minute. The germs of the disease are destroyed by cooking, but fresh germs may again occupy it if it stands long.

To make boiled water taste well, add to each glass (half a pint) as much tartaric acid as you can take on a knife-point, or two drops of hydrochloric acid.

Keep water in clean vessels.

Tea, coffee, and cocoa are permitted drinks, also good beer and pure wine.

Beware of ice and very cold drinks.

Let your beer be clear and fresh, neither sour nor insipid; have it served to you in glasses which have been washed with unsuspicious water (when necessary, boiled).

Bitter schnapps often contain aloes, hence act laxatively and are questionable.

Mineral-waters are unquestionable, if they come from natural springs or are prepared with distilled water.

Avoid drinking uncooked milk.

The disease may adhere to butter and fresh cheese, if they were prepared or kept near persons ill with cholera.

Eat fruit and vegetables, also onions and the like, only in a cooked state.

Eat nothing uncooked or unroasted which strange hands have touched, unless you know them to be reliable.

Purchase food only from reliable, clean shops. Avoid such as are in cholera houses.

Avoid all excess in eating and drinking. Be especially cautious if you incline to diarrhœa.

Eat and drink nothing as wholesome which is in a sick-room. Consider that flies and such insects might carry the germs of disease from the patient to your food.

Even cigars may convey infection in a patient's house.

3. Keep your head cool, your body warm, your feet dry.

Live and sleep in pure air; fumigations do not prevent contagion.

Wash your hands frequently during the day with water, soap, and brush, especially before you touch eatables.

If you have touched any dirty or suspicious objects, first wash your hands carefully with a solution of four teaspoonfuls of water-clear, fluid carbolic acid in a quart of water (five-per-cent.-carbolic-acid solution); then wash this off with clean water and soap.

In cholera regions do not bathe in rivers or ponds.

Use a public privy only in case of necessity. The seats of privies which are used by strangers should be cleaned daily with soapy water. For this take one pound of soap to a pail of hot water. If your privy is used by persons suspected of disease, rinse the wall of the funnel with freshly-slaked lime (1 part quick-lime to 4 parts water).

4. The infectious material of cholera is contained in the excretions of the patient. It adheres to soiled linen and clothing, and can be transmitted by anything which touches such objects or excretions, even when this only occurs indirectly and not in a noticeable manner.

Excretions of persons ill with, or suspected of having, cholera, and floors, etc., soiled with them, disinfect by copious (at least hourly) use of slaked lime or chlorinated lime solution (5 drachms chlorinated lime to 1 quart cold water), or other trusted disinfectants.

Linen, clothing, bedclothing, covers, and the like, also such as come to you from cholera regions, send, well wrapped up and tied, to a public disinfecting institution.

If such is not within reach, soak the things twenty-four hours in soap and water (one pound washing soap to a pail of hot water), and then boil thoroughly.

Other soiled objects cleanse thoroughly with such soapy water, with quick-lime, or carbolic-acid solution. If the nature of the objects does not admit of this, then place them for at least six days in an unused, airy, dry place.

Thorough drying is unfavorable to the development of the disease-germs.

5. If your digestion is disturbed, if you have diarrhœa, especially with vomiting or great nausea, consult a physician at once.

Until he comes, take a warm drink, put on a woollen bandage about your body, remain in your room; if in great distress, go to bed.

For relief, you may take a cup of tea, with cognac or rum. Let your food be a mucilaginous soup, also zwieback, or stale white bread without butter.

If you have reliable (prepared from a physician's prescription) cholera drops at hand, take from 20 to 30 drops on sugar.

Keep your presence of mind, even if you are ill. Fright and cowardice act unfavorably on body and mind.

THE RELATION BETWEEN CHEMICAL COMPOSITION AND HYPNOTIC ACTION.

To enlarge our knowledge of alcohol, as combined with fatty narcotic substances, and determine whether certain relations existed between their chemical composition and hypnotic action, DRS. A. SCHNEEGANS and J. VON MERING (*Therapeutische Monatshefte*, July, 1892) made a series of experiments.

Their results show that primary alcohols have a less narcotic action than the secondary, and the secondary less than the tertiary. Alcohols in general have a stronger action the longer the unbranching chain of carbon atoms which they contain.

In the tertiary alcohols the action is dependent upon the kind of alcohol radical which is combined with the tertiary carbon atoms; if only the radical methyl is present, as in trimethylcarbinol, then the action is a relatively weak one; it is greater when an ethyl enters, and increases with the number of the ethyl group combined with the tertiary carbon atoms.

When urea is substituted by simple and manifold primary alcohol radicals, there is no narcotic action; but narcosis is obtained when the urea is substituted by the tertiary alcohol radicals. Here again the law holds that ethyl combined with tertiary carbon atoms acts more powerfully than methyl. Hence the urea containing tertiary butyl possesses a smaller hypnotic action than those which contain tertiary amyl, or even tertiary heptyl.

The pinakones have a narcotic action; methylpinakon in a slight degree, not more than ethylalcohol; methylethylpinakon a stronger action, and diethylpinakon (propiopinakon) the strongest of all.

The acids of the fatty series possess no narcotic power, with the single and only exception of dimethylethyl acetate, which contains tertiary carbon atoms.

For practical use as narcotics, of all the substances examined, only the tertiary amylalcohol (amylenhydrate) and tertiary amyl urea are suitable.

The authors state in closing that these results agree with the facts arrived at recently by

Baumann and Kast, forming further support for their belief that in a certain combination the ethyl group possesses a certain pharmacological value which the methyl group does not under the same conditions.

These investigators came to the conclusion, after numerous observations, that disulfones containing the methyl group had but slight action, while disulfones which contain the ethyl group were in a high degree active,—*i.e.*, producing sleep; and that the intensity of the action is proportional to the number of the ethyl group contained in them.

THE ACTION OF HYDRASTININ.

Dr. Faber (*Therapeutische Monatshefte*, July, 1892) reports the use of hydrastinin in nineteen labor cases, giving full statistics. Of the nineteen cases, good results were obtained in nine cases, satisfactory ones in six, and in four the result was a temporary and uncertain one.

The results show once more that hydrastinin is a valuable remedy in gynæcology to stop bleeding; and, further, that the subcutaneous is the best form of administration.

AN UNUSUAL CASE OF ANILINE-POISONING.

Dr. Max Starck (*Therapeutische Monatshefte*, July, 1892) describes the case of a workman in a chemical-factory who was poisoned with toluidin. He was working at night, drawing off toluidin from an open reservoir. By carelessness in bending over the vessel and thus breathing the vapor, a slight poisoning occurred at five o'clock in the morning. By an unfortunate chain of accidents, the man remained in the workroom until seven o'clock. Then he was not taken into the fresh air, but to the warm room of a fellow-workman. Here he became unconscious at about eleven o'clock, and at one o'clock was carried, in this condition, in a closed carriage, to his home in a neighboring village, first receiving medical aid at six o'clock in the evening.

The time until then was spent in a closed room, in his clothes, which were saturated with aniline; his hands also were covered with it. He was entirely unconscious, motionless, his eyes half-open and mouth tightly closed, with a slight foam upon it. As Starck was not at hand, a colleague first cared for him, having his clothing removed and his hands cleaned, providing fresh air, and giving him hydrochloric acid and cognac.

Starck himself did not see the patient until eleven o'clock the following morning. Up to that time he had remained unconscious; but he aroused upon Starck's entrance and greeting, and bade him good-morning. The lips and mucous membrane of the mouth, which could only be opened a little with difficulty, were dark blue, almost black. His face was pale; pulse small, somewhat accelerated; respiration retarded and difficult; heart-sounds weak but clear; pupils narrowed; temperature slightly less than normal. He had severe headache, and his breath was strong of aniline. He soon relapsed into the comatose state. The medicine was continued, but further alcohol forbidden. A strong dose of magnesium sulphate was now given, and soon after very fetid fæces, smelling of aniline, were passed. After this a very interesting new symptom appeared. It was an unusually severe strangury. Clouded dark-red urine, containing a good deal of blood, was passed, a drop at a time, with great pain. The following morning his condition was somewhat alarming, because the heart-sounds were far from clear and the pulse very irregular, while the general condition was very bad. Stomach-ache and a sense of constriction had appeared; the blue color was diminishing. These threatening symptoms soon disappeared; but now the strangury came to the front. It constantly increased, and caused such pain that the patient cried like a wild animal, and could scarcely be controlled. The glans penis and the preputial fold became covered with a coating of dirty-yellow ulcers, and the whole penis was much swollen. During the entire course of the strangury the urine was very bloody, while the strangury reached its crisis on the fifth day, and then gradually disappeared, being over after eight days. The amount of blood was unchanged on the seventh day, and did not disappear until the tenth day.

Although there was great thirst from the first, for seven days there was a pronounced aversion to food.

After all other symptoms had disappeared, there remained great weakness of the lower extremities, combined with a temporary slight swelling of the knee and the knuckle-joint, which disappeared of itself. Entire recovery did not take place until the end of five weeks.

As we see, the action of the poison in this case was unusually intense. The patient remained over twelve hours in the saturated clothing; indeed, in closed rooms, the poison remains about thirty-six hours in the gastro-intestinal canal. The action of the alcohol,

according to all observers, increased the poison symptoms not inconsiderably.

It is an especially interesting case on account of the rare occurrence of strangury and the large amount of blood in the urine. Grandhomme first observed this. He believes that it occurs in cases where there was a specially intense action of the aniline, as was true in this case.

THE ABSORPTION OF IODIDE OF POTASSIUM THROUGH THE RECTUM, AND ITS EXCRETION.

CALANTONI (*Deutsche Medizinal-Zeitung*, August 4, 1892) has made a large number of experiments in this line upon men as well as animals, and observed the following results:

1. The absorption of iodide of potassium injected into the rectum is accomplished just as quickly as from the stomach, so that the usual method of applying the remedy can be replaced by introducing it into the rectum.

2. If a still more rapid absorption is desired, it can be obtained by warming the solution to from 91° to 98° F. The warmth produces a slight congestion of the mucous membrane, and in this way favors the absorption.

3. The time within which the excretion takes place is the same as by other methods. With the usual weak solutions the excretion has been entirely completed in from twenty-four to thirty hours, while concentrated solutions are slowly eliminated in from thirty-eight to forty hours.

THE EFFECT OF SULPHURETTED HYDROGEN INHALATIONS UPON CEREBRATION.

In the *British Medical Journal*, TIGLESWORTH reports two cases which he thinks were due to the inhalation of sulphuretted hydrogen, although there seems to be some doubt as to whether this gas was really responsible for the conditions produced. The cases which he reports are as follows:

CASE I.—B. H., aged thirty, was admitted into Rainhill Asylum, September 20, 1888. There was no history of insanity in the family. The patient himself was never said to have had any illness, but he appears to have drunk somewhat. He was a single man, and a laborer in some chemical-works. On the morning previous to his admission into the asylum he went to his work as usual. About 9 A.M. he was observed to be acting strangely, throwing his arms about wildly and shouting. In addition he lost power over his legs. As he was engaged in an occupation which exposed him to some chemical fumes (probably sulphuretted hydrogen), it was supposed—apparently with very good reason—that he had inhaled the gas. He remained excited and rough all that day, laughing and shouting by turns, and did not appear to recognize his brother. When admitted into the asylum on the following day he was in a very maniacal condition, shouting and throwing himself about, and it took several men to carry him to the ward. He kept throwing his arms about, but was distinctly unsteady on his legs when made to stand. In bed he wriggled about, throwing his head back on the pillow and waving his right arm round and round. This condition of things lasted for two or three days, when he became more quiet; and he then gradually passed into a taciturn, depressed state, sitting or standing about for hours doing nothing, and never speaking except when addressed. After remaining in this condition for many months, he gradually developed delusions of persecution and interference, and became very dangerous, making assaults on those around him. This condition of things lasted for upward of a year; but during the last few months an improvement has set in, and at the present time, although apparently not altogether free from delusions, these are, nevertheless, much less prominent; and though still excitable and talkative, he is much more tractable, and is regularly employed at outside labor. It is improbable, however, that he will ever fully recover.

CASE II.—R. H., aged thirty-two, was admitted into Rainhill Asylum on January 27, 1890. He was a married man, with three children, and was employed as an engineman at some chemical-works. He had always been healthy and temperate, but shortly before the onset of the mental affection he had an attack of bronchitis, which kept him at home for about ten days. While at his work a few days after this he accidentally inhaled sulphuretted hydrogen, and became "gassed," as it is called at the chemical-works. This produced headache, stupor, and prostration, for which he was kept at home for a few days, when he became delirious. He passed rapidly into a very violent, excited state, shouting and gesticulating; said he was Jesus Christ, etc.; tried to bury his head in the floor and to raise his feet above his head. When admitted into the asylum, three days later, he was still very violent and excited, gesticulating and talking incoherently, chiefly on religious subjects. He continued in a maniacal condition for two or three weeks, but at the end of a month from admission he

had distinctly improved; he had then become rational and was working fairly well. The improvement continued, and he slowly recovered mental vigor, and was discharged recovered on June 27, just five months after his admission into the asylum.

These cases have been grouped together by the author, although it is not quite certain that in the first case the gas which affected the patient was sulphuretted hydrogen, details being wanting as to the exact fumes to which the man had been exposed. That he had inhaled gas of some sort is pretty clear from the history, and there can be little doubt that sulphuretted hydrogen was the agent in question. That it was so in the second case is clearly stated in the history obtained from the patient's friends. There was a good deal of similarity between the two cases as regards the symptoms presented at the onset, there being in both a greater amount of muscular excitement than is usual in ordinary mania, and both men exhibiting a curious tendency to roll the head on the floor or pillow.

Laborers in chemical-works are quite familiar with sulphuretted hydrogen gas and its usual effects on the system; for it is not by any means unusual for persons exposed to its fumes to become "gassed," as the saying is,—that is, they pass into a condition of insensibility which lasts a variable time, and when coming round they are very often sick and dazed, and have a sense of oppression about the chest, and there is often a good deal of prostration for a day or two afterwards. Sometimes, indeed, though very rarely, the insensibility ends in death. It is, however, very unusual for lasting or permanent effects to be produced upon the nervous system, such as come under the designation of insanity. Indeed, the author has no record of any such cases occurring before. It is not, however, a matter of surprise that such effects should at times occur. That the gas has powerful narcotic properties is evidenced by the rapid insensibility it produces when inhaled in any quantity. Cases have been recorded by Savage and others in which insanity—generally taking the form of mania—has resulted from the inhalation of chloroform, ether, nitrous oxide gas, and other similar agents, and the cases just described as produced by sulphuretted hydrogen seem quite to fall into line with these.

The effect of all these agents appears to be to paralyze, in the first instance, the highest controlling and co-ordinating plexuses in the brain. If the dose be large, or the administration continued, more and more of the cortical centres in a descending series are involved, and insensibility ensues. But when the paralysis is confined to the highest cortical arrangements, the immediate result is not lethargy but excitement, owing to the centres next in series being emancipated from the control of the higher, and hence acting over-vehemently and incoherently. Such, at least, is the explanation offered by this writer of the pathology of these toxic cases, which are hence assimilated to the more ordinary forms of mania which we meet with in practice.

COLLECTIVE REPORT ON ANÆSTHESIA.

In a letter to the London *Medical Press and Circular*, the Berlin correspondent of that journal gives an abstract of a report presented by DR. GURLT, of Berlin, based on a collective investigation concerning anæsthetics. The report was the result of the observation of sixty-two observers, and the number of cases of anæsthesia compared in the report was 84,605, the number of deaths during administration being 33. The report of the previous year comprised 24,626 cases of narcosis, with 6 deaths, and the number added to those of the present report give a grand total of 109,230 cases of production of general anæsthesia, with 39 deaths,—that is, there was 1 death in every 2800 cases. As regards the different anæsthetics, chloroform was given 94,123 times, with 36 deaths, or 1 in 2614. Ether was administered in 8431 cases, with 1 death, as far as was known. There were 2891 cases of mixed anæsthesia (ether and chloroform), 1 death; in 1381 cases of administration of a mixture of ether and alcohol, no deaths; with 2151 administration with bromethyl, no deaths; in 219 cases of pental narcosis, 1 death. From this the report goes on to say ether is far less dangerous as an anæsthetic than chloroform. With regard to accidents with anæsthetics, numerous cases of asphyxia were reported. The statistics with regard to them were, however, so insufficient that nothing reliable could be gained from them. Chloroform had been used in the great majority of cases, and regarding the source of it, it was determined that nearly one-third of the reporters had employed a chloroform with the mark "E. H.," and which was one of the best in Germany. From the time when, in 1891, the frozen chloroform of Pictet was recommended, extensive use had been made of it. Regarding the value of the new anæsthetic, A. Köhler, of Bardeleben's clinic, had, on the basis of five hundred cases, for which it had been employed, reported the

narcosis was mild and that disturbances were less frequent.

Kummell reported that the stage of excitation was shorter, that vomiting was less frequent, that the reawakening was slow. In 2 cases he observed the pulse to fall to 40. As regards a maximal dose, 12 cases had taken 100 grammes each. In 2913 cases the duration of the narcosis was over an hour, but there were a few cases of extremely lengthened administration,—240 and 290 minutes respectively; 1 of 9 hours (case of tetanus).

With regard to the administration of morphine, the speaker could give no precise figures. Some authors always used it, some only in the case of alcoholics, and still others did not use it at all. Of the 33 deaths, 30 were from chloroform, 1 from ether, 1 from ethero-chloroform, and 1 from pental; 25 autopsies were made, and considerable organic changes found. The changes observed were fatty degeneration of the muscles of the heart, adhesion of heart to the pericardium and pleura, tuberculosis of the lungs, etc., so that a large proportion of the patients already bore the seeds of death with them. As we never know how a patient will take chloroform, we should take the greatest care in regard to the purity of the preparation, especially that it does not undergo changes from exposure to light and air. For the rest, it has been shown that no chemical difference was known between the different kinds of chloroform. The sources of the ether were the same. In ether narcosis the temperature sank about .10° C., while in chloroform anæsthesia a lowering of 1° had been noticed. Bronchitis was a contraindication of ether. German surgeons had had good results with ether, and considering the lessened danger, it was worth weighing whether they should not go over generally to etherization in Germany.

There were three methods of mixed chloroform and ether narcosis,—1, first chloroform and then ether; 2, ether first and then chloroform; 3, the use of a mixture of the two. As regarded bromide of ethyl, which could only be used for short periods, 2152 cases had been reported by sixteen authors. For anæsthesia that required relaxation of muscles this form was not applicable. Very considerable excitement was sometimes observed. Disasters had not occurred with it. Pental had been used in 226 cases (three authors), with 1 death. Pental was a very rapidly acting anæsthetic for short operations and when chloroform was not well borne. Some anxiety has been caused in some of the cases in which it has been administered.

THE TREATMENT OF URIC-ACID GRAVEL AND GOUT.

In the Croonian Lectures delivered before the Royal College of Physicians of London in 1892, Sir William Roberts reaches the following conclusions in the treatment of uric-acid gravel and gout (*Medical Press and Circular*, vol. lv. 1892):

In forecasting the possible effects of medicinal substances given internally in the treatment of gout, it is well to realize fully the actual conditions of the problem. These are widely different from those presented to us in urinary gravel. In the latter case the daily dose is designed to form an addition to a comparatively small bulk of fluid,—namely, to the forty or fifty ounces which constitute the diurnal discharge of urine. In the case of gout, we are seeking to make an impression on a much larger bulk of fluid,—namely, on the totality of the blood, lymph, and synovia,—a quantity in a man of average weight certainly not less than twenty pounds. Consequently, the effect of our dose must be proportionately less. Moreover, the urine is a dead excretion; it takes and keeps what is cast into it, and has no power of self-purification. The blood, on the other hand, is a living stream, with high powers of self-adjustment to a normal standard. A practicable dose of an alkaline carbonate enables us to alter the urine radically, to change its reaction from acid to alkaline, and thereby to exercise a decisive therapeutic effect in uric-acid gravel. But the same dose only produces a feeble and transient effect on the mass of the blood and lymph; the blood passes off the surplus alkali with all speed through the kidneys into the urine, and quickly reattains its proper physiological standard of alkalescence.

The medicinal agents which have been chiefly employed in the treatment of gout, with a view of controlling the tendency to uratic precipitation, are the carbonates and phosphates of potassium and soda, the carbonate of lithia, piperazin, and the waters of mineral springs, and it is to these alone that attention is called.

Alkaïes.—Alkaline substances are largely employed in the treatment of gout, both as pharmaceutical preparations and as components of mineral springs. It is believed that the alkaline carbonates and phosphates, administered internally, by increasing the alkalinity of the blood, enhance its solvent power on the material of gouty deposits, and thereby delay or prevent their formation. The experimental evidence laid before you entirely destroys this hypothesis. It has been conclusively proved that alkalescence, as such, has no influence

whatever on the solubility of sodium biurate. It has, moreover, been shown that the addition of an alkaline carbonate to blood-serum impregnated with uric acid produces no appreciable effect on the process of maturation and the advent of precipitation of the crystalline biurate in the medium. The use of alkalies in gout has been advocated on another ground. It is held in a vague sort of way, that there is an undue prevalence of acid in the gouty system, and that the blood is less alkaline than it should be. In some quarters it is even believed that this is the primary vice of the gouty state, and that there exists a so-called "acid dyscrasia," which dominates the whole condition. I have been at some pains to ascertain what foundation there is for this belief. Roberts has found very little of any kind, and none that is really valid. In the numerous examinations of the blood in gouty subjects made by Sir Alfred Garrod, the serum was invariably found to be alkaline, never acid, nor even neutral. But he remarks that there is often (not always) a marked alteration in the degree of its alkalinity, and that in cases of chronic gout the serum sometimes shows a near approach to neutrality. It is, however, obvious that observations on the alkalinity of the blood have no validity in regard to the point under consideration unless they are made on cases of gout pure and simple. Gout is often complicated, not only with pyrexia, but with serious secondary lesions in the kidneys and joints, which lead to a profound cachexia. These secondary lesions bring with them blood-changes of their own, which are only remotely concerned with the primary disorder, and have no bearing on the etiology of uratic precipitation. In the last few years some exact quantitative measurements have been made of the alkalinity of the blood both in health and in disease. These researches indicate that a diminished alkalescence of the blood is a common pathological deviation, and that it occurs in a variety of conditions which have no special relation to gout,—namely, in pyrexia, in diabetes, carcinoma, acute rheumatism, anæmia, leukæmia, and apparently in every kind of general cachexia. These facts and considerations suffice to show that, in the present state of our knowledge, the belief in an acid dyscrasia in gout rests on a pure presumption.

Carbonate of Lithia and Piperazin.—These two substances have been introduced into the treatment of gout expressly on chemical grounds. Solutions of these substances possess a high solvent power on free uric acid, and it has been inferred from this fact that their administration internally might exercise a favoring influence on the solubility of sodium biurate in the bodily fluids, and thereby tend to prevent the formation of uratic depositions. This inference does not, however, appear to be justified. It has been found experimentally that the addition of carbonate of lithia or piperazin (in the proportion of .1 per cent. and .2 per cent.) to blood-serum or synovia had not the slightest effect in enhancing the solvent power of these media on sodium biurate, nor the slightest effect in retarding its precipitation from serum and synovia artificially impregnated with uric acid. If these bodies have any beneficial action in gout, it is certainly not due, as has been supposed, to their solvent action on the material of gouty concretions.

Mineral Springs.—The bearing on the inquiry on the use of mineral waters is of important practical interest. A considerable number of the springs to which gouty patients resort are strongly impregnated with the salts of soda. Now, it has been conclusively shown that all the salts of soda act adversely on the solubility of sodium biurate and hasten its precipitation, and it may be inferred that the introduction of these salts into the circulation must tend to favor the occurrence of uratic depositions in the body. It is not, therefore, surprising to learn that, not infrequently, the first effect of these waters on a gouty patient is either to provoke a downright attack of gout or to aggravate the symptoms under which he was suffering. This event is now recognized by the physicians practising at these Spas as a thing to be looked for, and experience has taught them the necessity of caution in regard to the quantity of the waters to be taken by new-comers. They comfort themselves and their patients, however, in the belief that this preliminary storm is a necessary prelude to the calm amendment which is to follow. There is no doubt some foundation for this idea. It is no fiction that a gouty man, tormented with symptoms of irregular gout, is relieved by a regular arthritic attack. Probably this arises from the complete, or approximately complete, precipitation of the urates floating in his blood and lymph into the structures of the joints. The urates are thereby as effectually removed from the vital fluids as if they were eliminated by the kidneys. But it must, we think, be allowed that this is a rough mode of cure, and that it brings with it serious pains and perils of its own. My impression is that gouty persons should either entirely avoid springs which owe their activity to sodium salts, or should use them very sparingly. It is difficult to believe that they can do any direct

good, and easy to believe that they can do direct harm. If they do any good at all, it must be indirectly, by acting on the liver and the intestinal tract, and we possess other means of effecting this purpose without inducing any collateral risk.

There are, however, other springs of high and growing repute in the treatment of gout which are not open to these objections. These springs contain no soda, or only traces, and the sum of their mineral constituents does not exceed that which is often present in ordinary potable waters; they contain for their chief component a little carbonate or sulphate of lime, and it is doubtful whether the whole of this is absorbed into the blood; most of it probably passes out inertly with the fæces. In fact, springs of this class may practically be considered as equivalent to ordinary drinking-water, except that several of them have the advantage of being thermal. Among the springs of this kind may be mentioned the waters of Buxton, Bath, and Strathpeffner; in Germany, the waters of Gastein, Wildbad, Pfeffers, and the Sauerling Spring at Carlsbad; in France, the waters of Aix-les-Bains, Contrexeville, Vittel, and Bareges. Now, there can be no reasonable doubt that the efficacy of these springs has nothing to do with their scanty mineral ingredients, but depends on their watery constituent. They are drunk freely and on an empty stomach. The action would be to dilute the blood temporarily and lower its percentage of urates and sodium salts. This effect would be to tend to retard or prevent uratic precipitation, and thus give the defective kidneys additional time to overtake their arrears in the task of eliminating uric acid.

It may be asked whether the drinking-water at home would not answer as well as resorting to a mineral spring. The inference from experiments is that, other things being equal, the beneficial results would be the same; but the "other things" never are equal. It would scarcely be practicable for a man going about his usual business to drink eight or ten tumblers of water on an empty stomach every day for two or three weeks. At a watering-place a patient has nothing to do except to attend to his "cure." Moreover, in getting away from home, he leaves behind him the worries of his daily life, and experiences the advantage of change of air and scene, with a salutary modification of diet, and he has abundant leisure for outdoor exercise. All these collateral influences help to raise the general level of health and quicken the action of the secretory cells. We cannot forego the advantages of the time-honored practice of a visit to a mineral spring. At the same time, a word may be said in favor of a more systematic use of water in the every-day life of the gouty. Roberts has observed that some gouty persons are very sparing in their use of diluents; such persons should be encouraged to be habitually more liberal in this respect. In a few cases it might even be possible to imitate with plain water the regular two or three weeks' course at the Spa, and to repeat this course twice or thrice a year as a prophylactic measure.

It may be observed that in scarcely any complaint is there more need of caution in judging the effects of remedies than in gout. The incidents of the gouty diathesis exhibit a waviness—a flux and a reflux—which is highly characteristic. There is a natural tendency for the periods of aggravation to be followed by periods of amendment, and it requires a good deal of sobriety of mind to avoid being made the dupes of our own preconceptions.

Sir William Roberts believes the most promising road to an improved therapeutics of gout lies through a fuller and more accurate knowledge of the chemistry of uric acid and the urates, and a more penetrating study of the reactions of these compounds with the fluids and tissues of the body. This is a large and difficult field of inquiry, and demands the co-operation of many laborers.

AN INQUIRY INTO THE RELATIVE MERITS OF VAGINAL HYSTERECTOMY AND HIGH AMPUTATION, OR PARTIAL EXTIRPATION BY GALVANO-CAUTERY IN CANCER OF CERVIX UTERI.

BYRNE (*Brooklyn Medical Journal*, vol. vi., No. 11) presents the statistics of vaginal hysterectomy for the cure of cancer of the cervix uteri in a light far from favorable to the operation. Thus, quoting Pozzi's statistics, 311 hysterectomies performed by different authors gave 47 deaths, a mortality of about fifteen per cent.; or, taking the tables collected up to date, 944 operations performed by continental surgeons give 147 deaths, 14.5 per cent.; operations performed by British surgeons give a mortality of over twenty per cent.; 255 operations performed by American surgeons give 34 deaths, a mortality of over thirteen per cent.; the general mortality being about 14.6 per cent. A careful study as to the percentage of cure is exceedingly discouraging. Of 235 cases operated on, 63—that is, twenty-seven per cent. of the whole number—had an average immunity from relapse

of three years and four months. From a careful consideration of these figures and many others quoted from the original articles, Byrne believes that the ambiguous manner in which the tables of vaginal hysterectomy have been constructed is so misleading and in some instances so suggestive of erroneous inference as to render their compilers open to the charge of suppression of the truth or of actual misrepresentation. An operation known to be attended or followed by an average mortality of fourteen per cent. in the hands of the most experienced surgeons is a grave and dangerous one, and demands for itself a large percentage of permanent cures.

The frequency and rapidity with which recurrence takes place after vaginal hysterectomy for cancer, even when the disease has appeared to be limited and circumscribed, prove conclusively that it can lay no just claim to this essential feature.

The average period of life in cancer of the uterus, when not operated upon, is not less than two years, but often more, hence suffering has not been lessened but aggravated, and life has not been prolonged but shortened, in the vast majority of all cases thus far subjected to vaginal hysterectomy.

In twenty-eight cases of vaginal hysterectomy for cancer of the fundus at the Berlin Clinic, no less than seven died from recurrence within twelve months; therefore the regional grounds on which some have conceded to this operation even a limited field are inconsistent with facts, and therefore not tenable.

The operation is, in many respects, more dangerous than the disease for which it is undertaken, and the majority of all patients afflicted with uterine cancer would live longer without than with it.

On several occasions during the past twenty years ample and convincing proof, clinical and statistical, was presented as to the claims and unique characteristics of the electric cautery in the treatment of uterine cancer, and further observation has been more than confirmatory of opinions then advanced.

Amputation of a cancerous cervix by the cautery-knife is free from danger, a safeguard against all infection, traumatic or septic, and, what is of still greater importance, it is destructive to latent cancerous proliferation in tissues far beyond the line of incision, hence much more is comprised in the operation than the mere removal of a part or parts more actively involved in the work of destruction.

Any method of operating for which advantages so vital and so far-reaching can be claimed and established, and which thus distinguish it from all others, renders its adoption on the part of those who undertake to operate for cancer of the uterus no less than a moral obligation.

In forty out of sixty-three cases of cancer of the portio vaginalis, twenty-three having strayed away, the period of exemption ranged from two to twenty-two years, being an average for each one of over nine years. Of eighty-one cases involving the entire cervix, thirty-one were lost sight of, ten relapsed within two years, five had no recurrence for two years, eleven for three years, six for four years, eight for five years, six for seven years, two for eleven years, one for thirteen years, and one for seventeen years. So of forty of this class, whose histories could be followed up, there was an average period of exemption for each of nearly six years.

Byrne's method of operating is as follows: In cases where the entire cervix has been destroyed, and the corpus uteri as well as the parametric tissues are found to be involved, all softened and broken-down tissue is first removed by the free use of a sharp curette; the cavity is then sponged repeatedly with glycerin-carbolic lotion, is packed with absorbent cotton, which is allowed to remain for a few minutes, or longer if necessary. If on removing this cotton bleeding has ceased, and the cavity is fairly dry, cauterization may be proceeded with. If, however, oozing of blood to any extent still continues, a properly-rolled tampon saturated with the glycerin-carbolic lotion should be packed in and allowed to remain for forty-eight hours before application of the cautery. When the surgeon is prepared to operate, the diseased organ should be exposed to view and the vagina protected by a Sims speculum and an anterior and two lateral retractors. It may be necessary to seize the edges of the excavation by one or more volsella. Before introducing the cautery electrode a wad of absorbent cotton is to be passed into the cavity, held for a moment, and immediately on being withdrawn, the dome-shaped instrument, brought to a cherry-red heat, is rapidly and repeatedly passed over the bottom of the cavity. The latter is then to be again dried by wads of absorbent cotton held in dressing-forceps, and cauterization resumed as in the first instance. This process is to be repeated over and over again, until the deeper parts of the cavity have become dry and charred, when the sides are to be treated in precisely the same manner, and roasted to the same crisp condition. The seat of the operation will now present the appearance of a perfectly black and dry cavity. All ragged and overlapping edges are next to be trimmed off by the cautery-knife, a firmly-rolled

tampon of suitable size, with thread attached, and saturated in the glycerin-carbolic lotion, is placed in the cavity, and, finally, a supporting vaginal tampon is applied and the patient returned to bed. The vaginal tampon may be removed on the following day, but the deeper packing should be allowed to remain for forty-eight hours or longer. The subsequent treatment should consist of vaginal douches of carbolized water repeated twice daily.

In conditions admitting of high amputation the following is the method usually resorted to: The uterus is exposed and the vaginal walls protected in the manner already described; a diverging volsellum, being passed well into the cervical canal, should be expanded to a proper degree and locked, so as to afford complete control of the uterus during the entire operation.

By alternate traction and upward pressure of the uterus, an accurate idea may be obtained as to the proper point to begin the circular incision, so as to avoid injuring the bladder or opening into the cul-de-sac of Douglas. As to the latter, however, should it be found that the disease has involved the retro-uterine tissues, and that its excision or destruction by the cautery cannot be effected without opening into the peritoneal cavity, there need be no hesitancy in doing so. Should it be evident at the outset that the operation—in order to be thorough—must include a portion of the cul-de-sac, it will be better to make the line of incision anterior to this until the cervix has been removed, and leave the excision of the retro-uterine parts by the cautery-knife to be the final proceeding. Under these circumstances all that will be needed will be an antiseptic tampon properly applied.

In proceeding to make the circular incision a cold, slightly-curved cautery-knife should be applied close up to the vaginal junction, and from the moment that the current is turned on should be kept in contact with the parts being incised. Before removing the electrode for any purpose, such as change of position or altering the curve of the knife, the current should first be stopped, and the instrument again placed in position while cool before resuming incision. If the knife, though heated only to a dull red, be applied to parts at all vascular, hemorrhage will certainly follow.

This is a very important point, and should never be lost sight of in all cautery operations.

The circular incision having been made to the depth say of a quarter of an inch, it will now be observed that by increased traction the uterus may be drawn much farther downward, and by directing the knife upward and inward the amputation may be carried to any desired extent. In cases calling for amputation above the os internum, it will be better to excise and remove the cervix first; then, by dilating the upper canal sufficient to admit the diverging volsellum, once more proceed as in the first instance, taking care, however, to keep within bounds. It will be found that the cupped stump can now be drawn down and made to project as a more or less convex body.

In all cases the dome-shaped electrode should be passed over the entire cavity repeatedly, so as to render the cauterization still more complete.

It is important to add that, in carrying the knife towards the sides of the cervix, circular and other arterial branches are apt to be encountered, and hence, in this locality particularly, a high degree of heat in the platinum blade is to be carefully avoided. As an additional security against hemorrhage, the convexity of the knife should be pressed against the external surface of each particular section cut, so as to close vessels more effectually.

The metallic parts of the electrode for the distance of about two inches should be covered with a strip of thin flannel, so that the vagina may be protected from injury through the reflected heat.

THE MYDRIATICS IN OPHTHALMOLOGY.

S. D. Risley (*University Medical Magazine*, January, 1893) calls attention to the mydriatics and their employment in ophthalmic practice. From this paper the following abstracts are selected:

The groups of alkaloids differ more or less widely in their physiological properties, although obtained from a common source. The method employed for extraction determines, in large measure, the nature of the product. The alkaloid derived from *Atropa belladonna* will be atropine if extracted in the presence of an alkali, whereas, without this, the product will be hyoscyamine. The only means by which the chemist is able to differentiate the product is by the fact that hyoscyamine has the property of rotating a beam of light to the left, while atropine possesses no polarizing power, and chemically they are isomeric, having a common formula. As found in the markets, the alkaloids may be placed in two classes, the first of which would include those with a simple homogeneous base, and having the formula $C_{17}H_{23}NO_3$. To this class belong atropine, crystalline hyoscyamine, and hyoscine. In the second class are included those having mixed

bases, comprising the simple alkaloids of the first class, as they are found mixed in the plants of the natural order of the Solanaceæ,—viz., the *Atropa belladonna*, *Duboisia myoporoides*, *Datura stramonium*, *Scopolio japonica*, etc. To this class belong the commercial daturine, duboisine, amorphous hyoscyamine, and scopolein. As therapeutic agents, it is important to be careful to secure an isolated product, as represented in the crystalline salts, in contradistinction to the mixed bases, as represented in the amorphous commercial product. Much confusion regarding their physiological properties and relative therapeutic value has grown out of the employment of these mixed bases.

When it is desired simply to dilate the pupil for examination, cocaine or homatropine is preferred. In the treatment of inflammatory conditions of the cornea, especially in phlyctenular keratitis, atropine, four grains to the ounce, is recommended, the instillations to be pushed until full dilatation of the pupil is secured. In the treatment of acute iritis, atropine is advised in conjunction with other measures,—for example, local bloodletting, the use of mercurials, etc. The fact that a two-per-cent. solution of cocaine increases the mydriatic effect of atropine is referred to, but the danger that cocaine may disturb the nutrition of the cornea is clearly pointed out, as is also that a case of iritis may be mistaken for one of glaucoma.

In regard to the employment of mydriatics during and after middle life, Dr. Risley writes as follows: "There is a wide-spread opposition to their employment after the age of forty, since it is during the middle period of life that glaucoma usually occurs. I am sure that the fears upon which the opposition is based are not well founded, if due caution is exercised on the lines I have already pointed out. It is quite as important between forty and fifty years of age to use these drugs for the satisfactory correction of many eyes as before this period of life. The cases of retino-choroidal irritation, and accommodation cramp with tonic contraction of the iris and ciliary muscle, are quite as frequent as before the age of forty, and the therapeutic value of the mydriatics is just as marked. A wide experience fully justifies this statement. I have used these drugs with impunity, both in private and public practice, in many thousands of eyes, after the time of life specified. If harm comes from them, it is because a sufficiently careful study of the case has not preceded their use. I have yet to meet the first instance of an acute glaucoma precipitated by the employment of a mydriatic, but I have always exercised the caution which I have pointed out and again emphasize as the duty of every person essaying their use."

In regard to the headaches of old people, as well as the necessity of mydriatics in young eyes, Dr. Risley believes as follows: "The headache of old people is very frequently due to the eye-strain brought about by the use of too weak glasses, or from the neglect of astigmatic corrections. It is true they have lost the power of adjustment through the hardening of the lenses, but they have not lost the ciliary muscle, and the fruitless strain to see with an improper glass is quite as painful and often as harmful to the eyes as earlier in life. It is in these cases you will find the solutions of homatropine of signal service. It should be used in from 4- to 8-grain solution three times daily until the ocular irritation subsides, and then the proper glasses chosen.

"It is in young eyes, however, that the use of these drugs is most frequently needed. I wish to impress upon you, however, that they are not to be employed for the sole purpose of paralyzing the power of accommodation. This is of great importance, and in most cases a necessity, if you are not to be satisfied with more or less close approximations in ordering the correcting glasses. My purpose has always been to determine with the greatest possible accuracy the static refraction of each eye. Having ascertained this, it may be used in any way the judgment of the surgeon may dictate, but until this action has been gained all subsequent action must be based upon unknown factors, and this knowledge cannot be had except through measurements made after thorough paralysis of the accommodation.

"You will not use these drugs for this alone, however. A very large percentage of refraction cases suffer from irritation and pathological changes in the intraoculur tunics, the result of neglected eye-strain. The woolly choroid, hyperæmic retina, and optic disk you will find to rapidly disappear under the sedative and restful influence of the mydriatics. I am sure you will soon learn to prize them for their therapeutic value as well as for the paralysis of the ciliary muscle.

"The method of their employment and the member of the group you select will depend in large measure upon the condition of the eyes in any particular case. In eyes which are nearly or quite free from retino-choroidal irritation, homatropine hydrobromate will prove sufficient and the most desirable agent to employ. The property which most commends it, in comparison with the other members of the group,—viz., its evanescent control over the

power of accommodation,—makes it necessary to keep your patient at hand, so that the determination of the refraction can be made before the subsidence of its effect. I employ an 8-grain solution of the drug, instilling one or two drops in each eye every fifteen minutes for an hour or more, and often associate its use with a four-per-cent. solution of cocaine. They are not used at the same moment, however, since the cocaine solutions cause much temporary irritation. After the smarting has subsided the homatropine is instilled. In many cases you will be able to save your patients much time and annoyance by this method, since in from twenty-four to thirty-six hours its influence over the pupil and accommodation will have disappeared. It may also be selected in cases where retino-choroidal irritation is present, but must then be used for many days, or long enough to secure the needed rest and therapeutic effects already noticed. When employed for this purpose, it should be used at home, 1 or 2 drops being instilled in each eye four times daily. When used in this way, however, it proves of but little, if any, advantage in point of time over duboisine or hyoscyamine, since what is lost by the longer time required to recover from these drugs is gained by the shorter period required to accomplish the result wished for. All things considered, I prefer the hyoscyamine to either of the other mydriatics in the average case of asthenopia, and employ habitually a 2-grain fluidounce solution, 1 drop in each eye three times daily. It has the advantage of being less liable to cause constitutional symptoms than a 4-grain solution of atropine or a 2-grain solution of duboisine. Furthermore, the accommodation is recovered several days sooner than when atropine is employed, the average duration of the paralysis with hyoscyamine being seven or eight days, while that of atropine is from ten to fifteen days. In order to secure this result, however, you must be sure that the preparation used is hyoscyamine."

THE RELATION OF CONVERGENCE TO ACCOMMODATION, AND ITS PRACTICAL BEARING.

ARCHIBALD STANLEY PERCIVAL (*Ophthalmic Review*, November, 1892) comes to the following conclusions:

1. The correction of refractive errors, if of high degree, causes a profound alteration in the relative activities of the nervous centres for convergence and accommodation. Most individuals have a remarkable power of adapting themselves to the new conditions caused by such correction, and for them prismatic combinations are necessary.

2. For those individuals who cannot so adapt themselves to the correction, relief will often be given even by weak prisms that diminish the strain.

3. That the relative, not the absolute, convergence is the basis on which to found a principle of treatment.

4. That the "area of comfort" is roughly represented by the middle third of the relative convergence range, and that practically we need only concern ourselves with that which has to do with the vision of objects at and beyond the distance of one-third metre.

5. That the glass-rod test is to be regarded as a rough qualitative test, but it is not a reliable indication of the strength of prism that is required to give relief in these cases.

If complete charts were plotted out in all cases of muscular asthenopia they would throw much light on this difficult subject, but the time and patience demanded in working them out with neurotic subjects debar their general adoption. I think the following tests will in most cases be sufficient, and even these points, if accurately determined, will probably tax the patience of both examiner and examinee:

1. Correct all errors of refraction, and determine the relative range of convergence for 0 accommodation by means of abducting and adducting prisms, the test-object being at a distance of at least six metres. The revolving prism of Lucas Crétes is exceedingly convenient for this purpose.

2. Repeat the test with the test-object at one-third metre. This will give the dimensions of the range on either side of the point corresponding to 3 D of accommodation and 3 ma. of convergence.

3. Find the absolute maximum of convergence in order to determine if the range is much contracted. An accurate determination of the near point of convergence (Pc) is, fortunately, usually unnecessary.

In all cases when prisms and lenses are used together, the effect of the combination should be calculated or determined from the tables already published. (*Ophthalmic Review*, vol. x. p. 299.)

ENUCLEATION IN PANOPHTHALMITIS.

DR. F. LAGRANGE (*Journal de Médecine de Bordeaux*, November 27, 1892), after quoting a number of cases of enucleation for panophthalmitis, gives it as his opinion that this operation is always indicated under these circum-

stances. He refers, however, to the fact that Graefe, of Halle, holds a contrary opinion, and that this opinion is shared by many other eminent surgeons. At the Ophthalmological Congress of 1889 the question for the day gave rise to a discussion, which is thus summarized:

Ophthalmologists are divided into two camps. Some consider enucleation a serious, difficult, and dangerous operation, capable of occasioning in itself a fatal termination. The others, on the contrary, have immediate recourse to it whenever the suppurated eye threatens the orbits and the organism. If death occurs from panophthalmitis, the supporters of the first opinion believe it is always after enucleation. Graefe has cited examples of this, and Kalt has lately called attention to new facts supporting the same belief. But in these operations is the death to be imputed to the operation or to the affection? Graefe's operations have the serious fault of being prior to the Listerian period. Nothing proves, moreover, that in all of these cases the propagation to the meninges did not exist before the operation. Panas has published very full operations. In twenty-five years of hospital practice, this author, a great champion of enucleation in panophthalmitis, has only twice seen death follow the operation. The first case was that of a soldier who had received a splinter of shell in the left ocular superciliary region, and the only explanation of the fatal termination was serious traumatism. In another case of enucleation under these circumstances, the autopsy showed that death occurred from nephritis. In the session of the Ophthalmological Congress, Motass quoted two cases of mortal meningitis after phlegmon of the eye without surgical interference. Undoubtedly these cases would be frequent if removal of eyes afflicted with panophthalmitis was not regularly practised, not only by the majority of specialists, but also by all surgeons. When the pus and pyogenic elements have not passed the ocular coats, the complete removal of the organ, followed by a thorough antiseptic toilet of the orbit, is the proper procedure. The only contraindication of enucleation is some fault in the patient's general condition. All ophthalmologists clearly recognize the necessity of expelling the pus, but those who are afraid to enucleate propose to suppress suppuration by means which were considered as efficacious as enucleation and more convenient. Coppez, of Brussels, recommends exenteration; Truc, of Montpellier, evacuation; Cribret, removal of the suppurating vitreous body. The last two methods, while sacrificing neither the choroid nor the uveal tract, leave a large number of infectious agents in the eye which must be the cause of danger. Exenteration, supported by Coppez, is more acceptable, but exenteration in the most favorable cases provokes inflammatory conditions and recovery is apt to be slow. The author closes his argument, which has been based upon his personal observation and statistical information, with the repeated assertion that enucleation is an effectual operation and is always indicated in panophthalmitis, provided the patient's general condition permits operative interference.

THE VALUE OF JAVAL'S OPHTHALMOMETER FOR THE CORRECTION OF ASTIGMATISM WHERE MARKED AMBLYOPIA IS PRESENT.

A. Britton Daynard (*Post-Graduate*, December, 1892) urges the importance of determining the corneal astigmatism with Javal's ophthalmometer in all cases where marked amblyopia is present. He quotes a number of illustrative cases in which the corneal astigmatism was carefully measured with this instrument, and suitable sphero-cylindrical combinations ordered, resulting in some improvement in vision, as well as satisfaction in the relief of the accompanying asthenopia.

GLAUCOMA AND ITS TREATMENT.

In a lecture on glaucoma, Mr. Henry Juler (*Clinical Journal*, December 21, 1892) thus summarizes his views in regard to treatment:

With regard to treatment, the only effectual manner of reducing abnormal increase of tension is by operative procedure. It is true that certain myotic drugs, as sulphate of eserine and pilocarpine, when instilled into the palpebral sac, have the effect of reducing increased tension, and the use of eserine drops (2 grains to 1 ounce) is a most valuable aid to us in producing temporary relief in all cases, be they acute, subacute, or chronic. Unfortunately, however, their use can only be tolerated to a certain limited extent by the conjunctiva; the use of eserine soon sets up conjunctivitis, and must be discontinued at frequent intervals, during which the tension again increases. Besides this, it appears to lose its effect after prolonged use. We may, therefore, use either eserine or pilocarpine, combined with cocaine, in any case where it is desirable to postpone operative measures; but given a case of established glaucoma, the sooner its

tension is relieved by operation the better. The only efficient operation is a large upward iridectomy.

In acute cases the operation should be performed with as little delay as possible, for an eye in a state of acute glaucoma may be compared to a strangulated hernia, and, unless its tension is immediately relieved, the patient will become stone blind in the course of from twenty-four to forty-eight hours. As soon, therefore, as the case is recognized, all possible effort should be made to relieve tension and allay inflammation. Iridectomy should, if possible, be immediately performed; but if its postponement for some hours is unavoidable, the drops of eserine and cocaine should be instilled every hour, leeches applied to the temple, hot fomentations used, and the *primæ viæ* cleared by suitable aperients. Should such a case be seen late in its course,—say after two or three days' duration,—it may be a question whether vision is not entirely lost in the affected eye or eyes, but so long as any perception of light is found to exist, operation is always justifiable, and may be followed by excellent results, not only in the relief of pain, but in the recovery of useful sight. In subacute cases the same lines of treatment are indicated, although the necessity for immediate operation is not so great.

In chronic cases there is less urgency for operation; eserine can be used for a time, and the case carefully kept under observation. Here, again, the previous duration of tension and the state of the vision require to be carefully considered before the operation is decided upon. The less the contraction of the visual field, and the slower the progress of the disease, the more effectual the operation is likely to prove, and *vice versa*. Indeed, where contraction of the visual field is so great as to have passed its centre, it is a question whether the case had not better be left to nature rather than interfere with it. After prolonged tension in an eye the tissues appear to be universally weakened, and therefore to tolerate operation rather badly.

THE PROPHYLACTIC TREATMENT OF OPHTHALMIA NEONATORUM.

Budin (*Journal de Médecine de Bordeaux*, No. 43, p. 481, 1892) communicates to the Obstetric Society of Bordeaux the prophylactic treatment of purulent ophthalmia of new-born infants, which he uses in his practice at the Charité Hospital in Paris. It consists in the instillation into the eye of 1 drop of an aqueous solution of nitrate of silver, 1 to 150. From the 7th of October, 1891, to the 12th of July, 1892, he used this method in six hundred and seventy-five cases. Only one had ophthalmia of the membranous form, which was a child born before term, and two others had a slight conjunctivitis. The author remarks, however, that very minute care is taken in the aseptic treatment of the mother. It is a condition essential to success, and in his opinion explains that weak solutions of nitrate of silver are sufficient to prevent ophthalmia, and he objects to the concentrated solution of Créde, and has observed cases in which ocular accidents were due to the action of this solution.

M. Rivière uses a .25-per-cent. solution of nitrate of silver as a prophylactic instillation. He remarks that all purulent ophthalmias are not contracted by children during their passage through the genital canal, but that in all cases of maternity there are other post-natal causes of contagion.

Audebert employs a solution of one per cent., and has never experienced accidents the result of its caustic action.

Chaleire has seen lotions of naphthol used successfully as a prophylactic measure. He thinks that genital disinfection, however, is not enough in itself, and that instillations of nitrate of silver of one-per-cent. strength must be added, and advises their application as soon as possible after birth.

Piéchand reports a case which, although he himself made a quick instillation of nitrate of silver (1 to 50), purulent ophthalmia resulted. —Abstract *Revue Générale d' Ophthalmologie*, November, 1892.

AN UNUSUAL EFFECT OF JEQUIRITY IN CHRONIC TRACHOMA.

Dr. R. C. Hodges (*Ophthalmic Record*, December, 1892) contributes two instructive cases of trachoma and pannus, in one of which jequirity infusion (1 to 3 of water) was freely rubbed into the conjunctiva. No distinct reaction took place at the end of twenty-four hours, except some slight irritation of the conjunctiva. For seven weeks the infusion was dropped into the eyes each day, bringing marked improvement in the condition until the conjunctiva became smooth and normal, the cornea clear, and vision greatly improved. In the second case precisely the same treatment was employed with happy results. In a third case, without corneal complication, this method failed to bring about results that were useful, and iodide of silver was substituted, with the result of rapid im-

provement. He cites these cases to call attention to the fact that jequirity was used in one case seven weeks daily, in another six weeks, and in a third three weeks, and at no time was there any inflammatory reaction more severe than a simple acute catarrhal conjunctivitis. The good effect in two cases has already been described. Hodges concludes that the curative effect of jequirity is due to some principle not yet recognized and isolated, and not to the destructive action of the violent inflammation which it excites.

SEVERE BURN OF THE CONJUNCTIVA BY THE INSTILLATION OF CALOMEL WHILE GIVING POTASSIUM IODIDE INTERNALLY.

Dr. J. T. Carpenter, Jr. (*Philadelphia Polyclinic*, January, 1893) calls attention to the fact that the introduction of calomel into the conjunctival cul-de-sac is contraindicated if the patient is at the same time taking internally potassium iodide, or, indeed, any of the preparations of iodine, and reports two cases in which serious burns of the conjunctiva followed this practice. Although mention of this matter has been very frequently made, Carpenter desires to emphasize it still further by his report. The iodide is excreted by means of the tears, and when calomel comes in contact with it in the conjunctival sac, biniodide of mercury is formed, which is a severe caustic. He cautions against the use of calomel until proper inquiry has been made in regard to the internal medication.

INTRAOCULAR INJECTION OF ANTISEPTIC SOLUTIONS.

At the meeting of the Ophthalmological Society of the United Kingdom, November 10, 1892, reported in the *Ophthalmic Review*, December, 1892, occurs the following abstract:

Berry gave an account of some facts elicited during some experiments on rabbits, undertaken by his assistant, Dr. Chassaud, with the object of ascertaining the effect of different solutions injected into the vitreous. In some cases, before injecting the antiseptic, the vitreous was inoculated with fresh, septic pus. The only substance injected after inoculation which seemed capable of preventing purulent hyalitis was chlorine-water. At the same time this injection was much better tolerated by the retina and vitreous than any other strong antiseptic fluid. In two cases of purulent hyalitis in men, chlorine-water injected into the vitreous led to immediate improvement and the eyes were saved, although sight had been lost before treatment was adopted.

Dr. Hill Griffith suggested that trichloride of iodine promised to be very suitable for intraocular injection. It was said to be non-irritating, and to become decomposed in the tissues in the free chlorine and iodine.

Mr. Hartridge thought that cases frequently occurred in which the injection of antiseptic and germicidal solutions into the eye seemed most desirable, and if it were shown that this treatment could be safely adopted, eyes might be saved which now had to be removed.

Mr. Doyne referred to one case in which he had injected boric acid into the anterior chamber, and in which arrest of suppuration had resulted.

Berry thought it probable that in the use of intraocular injections a distinct advance in ocular therapeusis might be made. He pointed out that injections into the anterior chamber and into the vitreous could scarcely be compared. He had frequently used solutions of perchloride of mercury to wash out the aqueous chamber, but usually with resulting opacity of the cornea. This opacity he had noticed to occur less markedly in children than in adults.

INTRAOCULAR ABSORPTION OF IODOFORM.

Berry (*Ophthalmic Review*, December, 1892) records a case in which, after extraction of senile cataract, he applied iodoform freely to the wound. On examining the eye next day, the anterior chamber was found to be filled to the extent of apparently two-fifths of its capacity with iodoform, and the rest of the aqueous to be turbid. In some parts caked portions of iodoform could be seen plastered upon the iris. The iodoform was gradually absorbed without causing any great irritation. In a fortnight no trace of it could be seen, and the result of the operation was good. Although he had very frequently applied iodoform after removal of cataract, he had never known it to penetrate the anterior chamber.

SUBCONJUNCTIVAL APPLICATION OF COCAINE IN EYE-OPERATIONS.

Karl Koller (*New York Medical Journal*, January 7, 1893), for the purpose of rendering squint-operations painless, proceeds as follows: After having rendered the conjunctiva anæsthetic by a four-per-cent. solution of cocaine

he inserts the speculum, and by means of a mouse-toothed forceps seizes a fold of the conjunctiva over the tendon to be operated upon. The needle of a hypodermic syringe is inserted through this fold into the conjunctival tissue as deeply as possible, and a few drops of a two-per-cent. solution of cocaine are injected. This strength is preferred to a four- or five-per-cent. solution. He considers two-thirds of a grain as the utmost limit for adults that can safely be applied as an injection, if the locality of the injection is on the head, while on the limbs double the amount may be allowed. After the injection the speculum is removed from the eye, and the eye closed so that the artificial œdema of the conjunctiva is given time to disappear, which it does in about five minutes. Under these circumstances, Koller states that an operation, either tenotomy or advancement, can be performed without the slightest pain. In cataract extraction and iridectomy he proceeds as follows: First a few drops of a four-per-cent. solution of cocaine are dropped into the conjunctival cul-de-sac; then the speculum is inserted, and with a sterilized hypodermic syringe a few drops of a two-per-cent. solution of cocaine are injected under the conjunctiva next to that part of the cornea where the section is to be made. A solution has been previously sterilized by boiling it, and the hypodermic syringe by rinsing with alcohol and then with a two-per-cent. carbolic acid solution. After the injection the speculum is removed, and it is necessary to wait five or ten minutes for the artificial œdema to subside. The anæsthesia is complete, and Koller believes it will tend to diminish the percentage of prolapse of the iris.

THE TREATMENT OF RECTAL CANCER BY EXCISION.

H. Cripps (*British Medical Journal*, December 10, 1892) states that there is practically only one form of rectal cancer,—namely, adenoid carcinoma; yet, by the bedside, growths have very different clinical features. The length of time that the disease has been in progress accounts for some of this difference, but it is by no means the only factor. In some cases the growth may have been present for many months, or even a year or two, yet only have affected the bowel in a comparatively superficial manner, it having chiefly crept along the mucous and submucous coats without completely perforating the muscular layers. In other cases, even from the first, the cancer extends more rapidly in the deeper parts than on the surface, quickly invading and perforating the muscular coats, and then spreading widely into the neighboring tissues. It thus becomes bound to the sacrum behind, the bladder, prostate, or uterus in front, and it is especially apt to invade the peritoneum of Douglas's pouch.

So long as the disease has not perforated the muscular coats, the prospects of an operation are hopeful. It means that the cancerous affection may still be confined to the rectum, and that, by the removal of the whole or a portion of that organ, it may possibly be eradicated. On the other hand, when it has once extended beyond the bowel, the prognosis becomes most unfavorable. It is true that surgically the rectum can be dissected out from the neighboring organs, and surrounding indurated portions of tissue can be subsequently picked out, but the result is generally very disappointing, a recurrence taking place before the wound is completely healed. There is one part, however, where the extension of the disease through the coats of the bowel is of comparative unimportance,—that is, when the recto-vaginal septum is implicated. Cripps has had two excellent cases of permanent recovery after removing a considerable portion of involved septum.

Before expressing an opinion as to the desirability of an operation in any particular case, and even before examining the local conditions, the possibility of distal dissemination must be considered. Implication of the lumbar glands and liver does not usually take place till late in rectal cancer; but it must be remembered that occasionally the liver becomes infected while the local disease is comparatively insignificant. The younger the patient the earlier appears the infection of internal organs, and Cripps knows of cases where malignant disease of the liver was well marked before any suspicion had been aroused as to cancer of the bowel. If the liver is to any extent involved, its nodular condition can be detected by palpation, while in other cases the emaciated and cachectic appearance of the patient—considerably in excess of what the local disease would explain—justifies the inference that the internal organs have already become cancerous.

Should there be no evidence of general infection, the local state of affairs next comes under consideration. In the majority of cases a full and efficient examination can be made without the aid of an anæsthetic; but in doubtful cases the value of examining a patient under ether cannot be exaggerated. Disease, which appears at an ordinary examination too firmly

adherent for removal, after the muscles have been relaxed by ether may be found to be quite suitable for operation.

The speculum is of no practical value in examining rectal cancer, being far less reliable than the educated finger. The rigidity, the extent, and the hardness of the surrounding tissues are the essential features in determining the question of operation, and these can be ascertained by touch alone.

On passing the finger into the bowel there is generally a healthy interval of mucous membrane between the anus and the lower border of the disease. Usually this border is about a couple of inches from the anus. The disease may extend all round the bowel, or it may only affect a portion of its calibre. The length of the gut involved, too, is very various; sometimes it is a mere patch or ring, not more than half an inch in length, or it may be implicated for several inches.

The conditions met with which make a case unfavorable for removal are as follows: The bowel at the diseased portion is generally strictured, and difficulty may be experienced in finding the opening into it. This is caused by the straining and pressure from above invaginating the diseased area into the gut below. If this has occurred, a rough nodulated tumor can be felt, not unlike a cervix uteri. Around this is a cul-de-sac of greater or less depth, the real entrance to the bowel being through the centre of the prolapsed mass. It is very necessary to remember this tendency of the disease to become intussuscepted. The author has often seen cases where the cancer was supposed to be confined either to the anterior or posterior wall, for the finger, on examination, had passed into this cul-de-sac, in the belief that it was the channel of the bowel, and gave the idea of the growth being either in front or behind, instead of, as in reality, surrounding the bowel; and it must be further borne in mind that in these cases the site of disease is much higher than it appears, and Douglas's pouch is often drawn down in the prolapse. This prolapse is present in about one-third of the cases.

The surface of the growth is nodular and hard to the touch, but bits can easily be broken off with the finger-nail, and bleeding is quickly produced. If the finger be pressed against the mass, or if the tip can be insinuated into the orifice of the stricture, the whole feels rigid. The growth cannot be pushed upward, nor can it, save to a very limited extent, be moved from side to side. This rigidity is caused by the extension of the growth beyond the walls of the rectum. Such cases are quite unsuitable for excision.

As opposed to the kind of case just described, the disease may be found limited to a portion of the bowel, the whole circumference not being involved, or, if it is so, there is no tight stricture, the part being merely narrowed, so that the finger can be passed through it without using any force. The surface of the growth feels like an ulcer with a rough, raised, indurated base. The border feels hard, and is tucked over so as slightly to overlap the surrounding healthy membrane. The finger, particularly if the examination be made under an anæsthetic, is able to pass beyond the upper border of the growth. The bowel in the neighborhood of the disease admits of considerable mobility on the neighboring parts, and this is not merely noticed from side to side, but also from above downward. Of course this mobility is not so free as in health, but is sufficient to convey to the surgeon the idea that the rectum can be dissected from the surrounding tissue without much trouble. This is the class of case, including the laminar form of growth, which is very suitable for removal, and often gives most satisfactory results. It will be found, from practical experience, that the greater proportion of rectal cancers will fall decidedly into one of the foregoing categories, but occasionally cases will be met with which cannot be definitely placed in either, and here the propriety of operating must depend on the surrounding circumstances; but seeing that, if left, death must be the inevitable consequence, operation should be determined upon.

Of four hundred cases of rectal cancer seen during the last fifteen years, for various reasons, Cripps advised about half of these against operative treatment, either by excision or colotomy. In the remainder of the cases operative interference was more or less strongly urged. In many the advice was not followed, the patient preferring treatment by electricity or other quack remedies. There remained, however, one hundred and fourteen cases in which he operated for rectal cancer,—thirty-eight by excision, seventy-six by colotomy.

In the list of the thirty-eight excisions, the ultimate termination of such cases as he could trace is as follows: Three died, thirty-five recovered, giving a mortality of a little less than eight per cent.

Of the twenty-eight cases whose subsequent history can be traced, in fifteen recurrence is known to have taken place, while in twelve no recurrence has occurred. In seven of these over three years has elapsed; so that, accord-

ing to the method adopted by Mr. Butlin and others, these cases may be considered as cures.

OPERATION FOR THE REMOVAL OF SUB-MAXILLARY CANCER.

OGSTON (*British Medical Journal*, December 3, 1892) describes a special method of operating on submaxillary cancer, which he recommends from its easy performance and because of a large percentage of permanent cures which have resulted from its adoption.

He states that cancer of the tongue or lips, if laterally situated, usually spreads to the absorbent gland that lies in the submaxillary region, embedded in the submaxillary salivary gland, about an inch and a quarter in front of the angle of the jaw. In this situation recurrence of cancer is also usual after it has been removed by operation from the lips or tongue. (Central cancer of the lip generally extends to, or recurs in, the sublingual glands, just behind the symphysis of the jaw.) The appearance of the disease in the submaxillary region shows itself by a fulness, due to an egg-shaped tumor, increasing in size from that of a small hazel-nut to that of a plum. It is at first movable, and its mobility and shape can best be made out by the surgeon putting the thumb of his hand which belongs to the opposite side from the disease down into the floor of the patient's mouth between tongue and jaw, and the fingers of that hand externally over the submaxillary region, when, by this double palpation, the condition can be accurately made out.

As the disease progresses the gland enlarges in all directions, but chiefly upward towards the base of the jaw, which it approaches so closely that by the time it has reached the size of a large cherry it is so intimately connected with the jaw that, though it may be movable upon it, it cannot be completely removed by operation unless a piece of the jaw be taken too. The gland speedily becomes adherent, and the disease then invades the jaw, eroding and extending into it, and this may occur even where independent mobility of the two structures seems present to a certain degree. The progress of the disease in the gland is not a very rapid one, and the mischief remains for many months isolated there, presenting, if properly dealt with, a condition favorable to a complete removal and permanent cure. Eventually, however, it extends backward, and appears next in the glands over the carotid, just in front of the sterno-mastoid, and vertically below the angle of the jaw. When it reaches this situation operation is very seldom successful in permanently curing.

The following is the method of operation:

After completing the ordinary preliminaries, an assistant, standing behind the patient and fixing his head, compresses the facial artery in the usual manner against the base of the jaw. The operator carries an incision downward from the angle of the mouth to the base of the jaw, dividing all the soft parts down to the bone. This incision lies anterior to the diseased gland. From its lower extremity a second incision is carried backward to the angle of the jaw, parallel to and just above its base, dividing again all the soft parts, including the facial artery, down to the bone. This incision lies above the disease. The thumb or forefinger of the operator's left hand is now placed in the mouth, and lifts the soft parts of the cheeks outward, while the scalpel, carried close to the jaw, severs them from the bone as far back as its angle, so as to leave the outer surface of its body bare.

In the somewhat rare event of the disease having originated on the inner surface of the cheek, it can at this stage be freely dissected off the inner surface of this cheek-flap. The arteries are then tied or secured by forceps.

Exploration between the thumb inside and the index-finger below the jaw now enables the operator to gauge the extent of the disease and the distance to which its connection with the jaw extends backward and forward. Corresponding with this, incision is now made completely through the jaw well in front of the disease by an amputation saw, which works better and more quickly than any other. The incision is usually vertical, and falls about the situation of the first or second bicuspid, which may be extracted before the saw is applied. The incision may sometimes be advantageously directed somewhat obliquely downward and forward, so as to save more of the alveolar edge, and the teeth, if present, may be extracted from its line. It is not, however, absolutely necessary to extract the teeth, and frequently it seems better to leave them, as what remains of them heals in and may be of service. A second incision through the jaw is next similarly sawn well behind the disease. It severs the body from the ramus by an oblique cut, but its precise situation will vary according to the extent of the disease. The inferior dental artery generally gives no trouble, but if it bleeds from the inferior dental canal it is most easily controlled by inserting into the bony canal the end of a wooden lucifer match trimmed to a point by a scalpel and dipped in

oil of turpentine to disinfect it, the projecting part being cut off flush with the surface of the bone. This securing of the artery may be done either now or later.

The next stage of the operation consists in dissecting down the loose part of the jaw along with the disease and the parts lying over the digastric triangle, and severing them from the side of the tongue, the digastricus, mylohyoid, and hyoglossus muscles. If the side of the tongue be involved, its disease is removed at the same time.

It may be remarked that, as the disease in the submaxillary gland has usually not extended to the skin, it is not necessary to make any cutaneous incisions below the level of the base of the jaw. But if the disease should have involved the skin, a couple of converging incisions may now be made in it by a scalpel or sharp-pointed scissors, care being taken to keep well free of the limits of the disease; or a vertical incision may, in any case, be made downward if required for space or drainage.

The most advantageous way to separate the disease from the side of the tongue and the digastric triangle is the following: The loose portion of the jaw is seized by the left hand and doubled downward, exposing the floor of the mouth. The mucous covering of this is divided by sharp-pointed scissors from the one point of section of the jaw to the other. The left hand, grasping the jaw and embracing the diseased parts, so as to recognize their limits by the feel, now draws these outward and doubles them down towards the neck, while the scissors severs the soft parts between them and the tongue and hyoid bone. While cutting in this manner the facial artery is divided, but so tense are the parts that it does not usually bleed, but appears as a gaping tube, which can be grasped by the forceps. It is well, however, to have a stout pile or other forceps ready to seize it in case of its giving rise to troublesome hemorrhage. There is usually little or no hemorrhage in this part of the operation.

If the part removed be now washed and examined it will be seen whether the whole of the disease has been taken away, and if this prove not to have been the case, the portion left can be easily dissected off, so free is the access obtained in this operation. More of the jaw may also be sawn off if required.

The wound is closed by passing harelip sutures through its vertical portion, and the anterior and posterior ends of its horizontal part may be secured by continuous catgut suture. The middle is best left open for drainage, and gives egress to the end of a strip of iodoform gauze, which is packed between tongue and skin to serve as a capillary drain and prevent the fetor that otherwise occurs in mouth-operations. The gauze is drawn out on the second day or later.

EXTERNAL ŒSOPHAGOTOMY IN THE OPERATIVE TREATMENT OF CICATRICIAL STRICTURE OF THE ŒSOPHAGUS.

WILLY MEYER (*New York Medical Journal*, November 19, 1892), after a discussion on the subject of external œsophagotomy, offers the following propositions:

1. After swallowing acids, etc., sounding should be begun as soon as it can be made out that the internal wounds have healed, certainly not later than two to four weeks after the accident. This prophylactic treatment has to be continued at regular intervals for a long period; if necessary, for life. Gastrostomy can be primarily performed for this purpose (Maydl, Von Hacker).

2. If a stricture of the œsophagus has developed and is impermeable from the mouth, the patient should submit to an operation as early as possible. No forcible dilatation or boring with bougies should be permitted. If the latter is done, the formation of a false passage is favored. The œsophagus has thus often been perforated.

3. External œsophagotomy for the establishment of a temporary fistula in the neck (œsophagostomy) will be found useful and sufficient in many of these cases, especially in children. The stricture generally can be passed quite easily from this opening. A tube can be left *in situ* without the annoyances which are caused by passing it through the nose and pharynx. This operation is always indicated if, besides an impermeable stricture in the lower portion of the œsophagus or behind the bifurcation of the trachea, a second (or third) one is present at a level with, or not far below, the cricoid cartilage.

4. In grown patients and those who are emaciated and require immediate nutrition, primary gastrostomy, with subsequent retrograde sounding, may be preferable.

5. If the stricture has been successfully stretched, and if the same sound which passed from the wound in the neck can also be pushed down through the mouth, the fistula should be closed. If gastrostomy has been performed, closure of the fistula generally requires laparotomy and separate suture of stomach and abdominal wound.

6. In a number of cases there is a limit to stretching and divulsion, or the repeatedly-widened stricture rapidly recontracts. Then internal œsophagotomy is indicated as the only means of curing the patient.

7. Internal œsophagotomy, if performed under these circumstances, is a very dangerous operation, mainly because we have no means by which the operating field may be kept sterile.

8. A thorough disinfection of the intrathoracic portion of the œsophagus seems feasible by first adding gastrostomy to external œsophagotomy, and *vice versa*. Then the operating field and the stomach can be cleansed by antiseptic irrigation before and after the operation. Through temporary antiseptic tamponade of the cardiac portion of the œsophagus and of that between the fistula in the neck and the pharynx we may hope to guard against contamination of the wound.

9. From a wound in the neck internal œsophagotomy can be carried out in the same way and with the same instruments as are used for dividing strictures of the anterior urethra from within. The division should be made in a retrograde way only, the knife having been first passed beyond the stricture. A guide pushed up from the gastric fistula will help to accomplish this, in obstinate cases. It may become necessary, especially in adults, to have an instrument of a special length and curves constructed for this purpose.

Reviews.

BOTANY: A CONCISE MANUAL FOR STUDENTS OF MEDICINE AND SCIENCE. By Alex. Johnstone, F.G.S., Lecturer on Botany, School of Medicine, Edinburgh. With one hundred and sixty-four illustrations and a series of floral diagrams.
New York: D. Appleton & Co., 1892.

To condense to the size of this little Manual such a comprehensive subject as botany, and in a style at once cogent and lucid, demands talent of high order in the art of condensation and selection. While we cannot consider this little book a masterpiece, yet its merit is sufficient to commend it to the overworked student, who has not time to digest the more voluminous works. Although we deem that part of the text devoted to the consideration of vegetable morphology and histology superior to that which deals with the taxonomy, it is unsatisfactory, as clearness and simplicity have been sacrificed for brevity. The value of this Manual, in our estimation, depends wholly upon the illustrations. If the text is insufficient, it is more than compensated for by the profusion and excellence of the diagrams, and this is one instance in which the text is subordinate to the illustrations. The author, with happy felicity, has supplemented to the text an admirable glossary which cannot fail to facilitate the task of the beginner in acquiring a knowledge of technical terms. The index is quite complete, and here we have nothing of which to complain. The quality of the paper, the character of the printing, and the neatness of the binding are evidences that the publishers have fully discharged their duty and placed upon the market a beautiful little volume.

D. B.

A MANUAL OF JURISPRUDENCE AND TOXICOLOGY. By Henry C. Chapman, M.D.
Philadelphia: W. B. Saunders, 1892.

As is stated in the preface, this Manual embraces essentially the course of lectures on medical jurisprudence delivered by the author to the students of the Jefferson Medical College during the session of 1891 and 1892.

In introducing his subject the author deals in a simple and forcible way with such important practical matters as the relations of the physician to the coroner, the manner of making post-mortem examinations in medico-legal cases, the relations of physicians to the courts, and also ordinary and expert witnesses. The last-mentioned topic is of so much importance that it will bear more than a passing notice.

Dr. Chapman defines the ordinary witness as one who testifies simply to matters of fact of which he has personal knowledge; the expert, as one who likewise testifies to matters of fact, but concerning which he has special professional expert knowledge such as ordinary witnesses cannot be expected to have. The expert is expected to give, in other words, an opinion based upon professional training. The doctor then, further, says, the expert's "knowledge of the particular facts of a case, however, will depend entirely whether he sees proper to make himself acquainted with them or not. No law can compel, for example, a physician to examine the contents of a stomach, with the view of determinining whether they contain a poison, if he refuses to do so. . . . The physician may give such reasons as he pleases for refusing to undertake a medico-legal investigation, and no law can compel him to do so." The correctness of these statements cannot, of course, be questioned. Further on, however, the author says, ". . . Any physician may be called upon

by the Commonwealth or the defendant, in murder cases, for example, to give testimony. It is not only desirable, but most important, under such circumstances, that if the physician agrees to give his time to the Commonwealth or the defence, the matter of compensation should be definitely fixed. If a physician be subpœnaed as an ordinary witness, which summons he must obey, and, having given his evidence in court, the Commonwealth or the defence endeavors to obtain an expert opinion upon the facts testified to in addition to the testimony as to the mere facts themselves, the physician is justified in refusing to answer. If, for example, a physician happens to see a man stabbed, and is subpœnaed as an ordinary witness to testify as to the facts, he must answer questions bearing directly upon such facts as he observed. But should the judge, prosecuting attorney, or defence ask a physician who has been subpœnaed strictly professional questions, which an ordinary witness, such as a laboring man, could not possibly answer, and which he alone can answer, on account of his being specially qualified, the physician, in justice to himself, should refuse to answer them. The court has no more right to take advantage of the physician's professional knowledge and skill in extorting evidence from him without proper compensation than it would have to take his property; for his knowledge is his property, his capital."

From the stand-point of right, of justice, of morality, there can be no doubt of the correctness of Dr. Chapman's views; but, unfortunately, these views are *not in accord with law!* Physicians have, on a number of occasions, been held in contempt of court for refusing to answer questions involving expert knowledge, under precisely the circumstances detailed by Dr. Chapman. It was once the misfortune of the reviewer to be subpœnaed in a case of which he had accidental knowledge only. The facts of the case as remembered were cheerfully testified to. Thereupon the attorney for the prosecution asked bluntly, "What is your diagnosis of this case, and what is your opinion of its future?" The physician declined to answer, and appealed to the judge, stating that the answer required the exercise of expert knowledge,—of knowledge acquired only after many years of unremunerated work in the hospitals; of knowledge so special that even few among physicians possessed it; and, further, that no offer of remuneration had been made by counsel; that, indeed, the circumstances under which the subpœna was served were such as to justify the belief that the lawyer for the prosecution was guilty of a premeditated attempt to extort an expert service without the payment of a fee. The court, which happened to be represented in the person of one of our most learned, most cultured, and most gentle judges, listened quietly and patiently to the entire appeal. He then expounded the law at some length, but in substance as follows: "Doctor, you are under oath to tell the truth, the whole truth, and nothing but the truth. Any knowledge that you may possess of this patient directly, or any knowledge that you may possess bearing upon the case most remotely, is a part of the truth, of the whole truth, and I must direct you to answer." Under the circumstances there was nothing else to do but to answer. Law, therefore, is not, in such instances at least, synonymous with justice. Nothing can be more irritating to a physician than an experience of this kind; nothing can be better calculated to disgust him with lawyers and the courts, and to make him avoid by all means possible the subpœna. It is very doubtful, therefore, whether the Commonwealth or the purposes of trials are best served by such an unfortunate condition of affairs. Justice certainly requires either that the laws be changed or that some provision be made for the payment of the expert by the court. It is a grim satisfaction, however, for the physician to know that when he reveals such a contemptible trick as was resorted to in the case just detailed, it makes a most unfavorable impression on the jury as regards the lawyer concerned. Indeed, before the average jury, who have their own ideas of justice, it is equivalent to wrecking his case.

The various subjects proper are considered by the author in the following order: The signs of death; wounds; the examination of blood-stains; burns and scalds; death from starvation, heat, cold, and lightning; rape; pregnancy; fœticide; infanticide; legitimacy; feigned disease; insanity; and toxicology. The space devoted to each particular topic is necessarily brief, but the presentation is always thorough, no important point being omitted. In addition, the text is liberally interspersed with excellent illustrations, many of which are original. Further, the style of the author is at once pleasing and interesting, and before we have turned very many pages, we find that we have a very readable book before us, and one, too, that is admirably adapted to the wants of the student. The author has evidently borne in mind the fact, too often forgotten, that the time of the student is limited, and he has presented the essentials of a complex and difficult

subject in a most acceptable form, and has at the same time avoided a too elementary treatment of it. F. X. D.

KIRKE'S HAND-BOOK OF PHYSIOLOGY. By W. Morrant Baker, F.R.C.S., and V. D. Harris, M.D. Thirteenth edition. Illustrated.
Philadelphia: P. Blakiston, Son & Co., 1892.

This is a book which was evidently published on the other side. It is also evident that the American imprint was placed upon its title-page in England. The paper is rather flimsy; we suppose with the object of getting a large number of pages in a comparatively small space. There are, in consequence, about nine hundred pages in the volume, which, from its thickness, one would judge contained about five hundred. To those who have been interested in the study of physiology during the last twenty years, "Kirke's Hand-Book" is probably very familiar, and the fact that it has reached the thirteenth edition proves that it must have been largely employed as a text-book in medical schools.

The editors, in their preface, state that it has been brought up as far as possible to the present physiological knowledge, and on looking over the pages we are impressed with the fact that they have succeeded fairly well in maintaining the book in its old position. Of course, it is to be remembered that it is not comparable to the work of Landois and Stirling, or to the classic of Dr. Michael Foster, of Cambridge; but, being a much smaller and cheaper work, it does, however, fill a place which is not filled by any other work, unless it be that of Yeo.

Correspondence.

LONDON.

(From our Special Correspondent.)

Japanese Camphor—Ophthalmological Society: 1. Kerato-Malacia in Children. 2. Probable Rupture of Optic Nerve. 3. Portable Sterilizing Apparatus—Deaths under Anæsthetics—Strontium Bromide in Vomiting—A Clinical Pulse-Manometer—Poisoning from Tinned Sardines—Radical Treatment of Severe Club-Foot in Children.

The *Board of Trade Journal* for November gives some interesting details with regard to the camphor trade of Japan. As is fairly well known, the camphor-tree is a species of laurel which grows in the mountainous parts of the island, far from the sea. The tree may grow to an enormous size, and the trunk in many instances is as much as ten to fifteen feet in diameter, and rises for about thirty feet without branching. The wood is excellent for ship-building. There seems to be a surprising reticence among the authorities who could furnish information with regard to the culture and actual manufacture of the products of the camphor-tree. There is, besides, an enormous amount of adulteration practised. The camphor is extracted from the chips of the tree by a process of distillation in a current of steam. The steam passes over the chips into a series of wooden receptacles with perforated bottoms, the last of which contains straw. The crude camphor crystallizes on the straw in this last vessel. Along with the camphor proper there passes over a quantity of a volatile oil, which is not crystalline at the ordinary temperatures, but possesses a strong but pleasant camphoraceous odor. This oil is held in high esteem by the Japanese, not only for industrial purposes, such as illumination, but also as a remedial agent for external use. In this respect the oil acts as an undoubtedly valuable stimulant to the skin, and is more valuable than the liniments of turpentine or camphor usually employed in bronchitis and similar chest-affections. Few houses in the island are without their bottle of camphor oil, which they use for rheumatism, sprains, colds and coughs, and many other ailments. The market price of drained camphor is about $38.25, and for the oil $5.25, for a picul (133⅓ pounds).

At the last meeting of the Ophthalmological Society a paper was read by Mr. Spicer on "Kerato-Malacia in Children." He pointed out the great liability to the appearance of gangrene of the cornea in underfed, ill-nourished children, especially when their vitality was further lowered by any long illness. In such circumstances a simple conjunctivitis may run on to perforation or complete destruction of the cornea. In the later stage of a disease like tubercular meningitis, where paresis of the orbicularis prevented closure of the eyelids, there was great danger of the cornea undergoing sloughing and perforation. This would occur without the appearance of much sloughing or purulent discharge. In many other cases the sloughing was not due to nutritional defects, but to a diminished sensibility to irritation. As for treatment, a rich diet was indicated, and cases under his care had been treated by Kepler malt extract, with cod-liver oil and instillations of eserine. Several cases were described in which this treatment had been adopted with success.

Brigade Surgeon Brockman said that the condition was common in India during times

of famine, both in adults and children. It was especially common in the victims of congenital syphilis. The conjunctiva would become dry and covered with an unctuous material, and sloughing took place very rapidly. Total destruction was by no means uncommon. For treatment he recommended cod-liver oil internally, with hydrochloric acid and nux vomica, and pure vaseline under the lids, along with instillations of eserine.

Dr. Priestley Smith had seen cases originate from exposure of the eyes during sleep. Such cases he had treated simply by the use of a strip of plaster to keep the lids closed; they were common in association with severe illnesses. In Graves's disease there was a similar risk. The application of a supporting bandage in such a case would effect a temporary cure. In some cases he had adopted the expedient of slitting the edges of the lids in a V shape, and uniting the raw surfaces. This gave excellent results, and the edges could easily be reopened at a future time.

At the same meeting a paper was read by Dr. Johnstone Taylor, on a case of probable rupture of the optic nerve as the result of a blow from a chip of wood. In this case the blow was followed by total blindness. Five days after the injury there was no direct reflex, convergence was defective, media clear, but the disk hazy, showing also a hemorrhage. Divergence gradually became marked, and the disk became pale and the vessels shrank. There was no visible rent of the retina or choroid. It was suggested that rupture of the nerve had taken place, either as a result of a sudden violent rotation of the globe or from a sudden croptosis due to the insinuation of a foreign body.

This case led to the narration of a number of cases by Messrs. Tweedy, Frost, and Buller, which showed what large foreign bodies might become lodged in the orbit without giving rise to any marked external damage. In one case a large piece of pipe-stem lay behind the globe for several months without even the patient's knowledge that it had got there at all. In obscure cases like that of Dr. Taylor it was, therefore, imperative to search carefully for a foreign body.

A very neat and useful sterilizing apparatus for both instruments and dressings, devised by Mr. Bronner, was also shown. The apparatus contained convenient trays for holding the instruments, which were all mounted in metal handles, but were so well balanced as to be practically indistinguishable in use from the old wooden or ivory-handled ones.

The importance of the question how to administer an anæsthetic was probably never before more thoroughly appreciated by the profession than it is at the present time. The steoreotyped heading, "Death under Chloroform," still appears with uncomfortable frequency in the medical journals, and on reading some of the published cases one is struck with the apparent hopelessness of the task of finding out an inevitably safe mode of giving an anæsthetic. The Hyderabad Commission has done something, and the further experiments now being carried out by Professor Hare will probably do more, to throw light on the causes of death under these circumstances; but in the mean time there can be no doubt that a greater measure of safety can be obtained if all our anæsthetists are thoroughly instructed in the existing and already-recognized facts about this special form of medication. I think that everybody who has, or may have, to administer an anæsthetic would do well to look at a little work by Dr. Dudley Buxton, which has just reached its second edition in this country. The work is a thoroughly practical manual on anæsthetics, but it leaves little to be desired even by the reader wishing to acquaint himself with most of the controversial points with which the question is bristling. Of course no such work can give the confidence of actual experience, but all the directions are short, clear, and suggested by a long spell of practice, and hardly an emergency could occur which is not anticipated by the author.

The therapeutic value of the salts of strontium has received more than one notice in the pages of the GAZETTE. An Italian clinician, Dr. Coronedi, has recently tried it in the form of strontium bromide in cases of vomiting of nervous origin. Dr. Dougall, of Glasgow, has tried this drug in similar conditions, and is much pleased with the results. A patient who suffered from chronic gastritis and frequent vomiting, in whom a great number of the recognized gastric sedatives had been tried without avail, quickly obtained relief on taking 30-grain doses of strontium bromide in water. He considers this salt worthy of extended trial.

At the West London Medico-Chirurgical Society, Dr. Rayner Batten showed a useful form of clinical "pulse-manometer," intended to replace the more complicated and not particularly reliable "sphygmo-manometer" of Von Basch. This little instrument, arranged on the principle of a spring-balance, is applied vertically over the radial artery, and pressure is applied by means of a single finger on the top of the instrument until the fingers of the other hand, placed peripherally, cease to detect any pulsation. The pressure required can then be

read off on the scale. In determining the pressure necessary to extinguish a pulse, one must be on one's guard to eliminate the effect of a recurrent pulsation,—a phenomenon very common in some subjects with low blood-pressure. For this reason it is well to always use more then one finger to ascertain when the pulse has been extinguished.

The great care necessary in the selection of food for tinning has been recently painfully evidenced in the case of a man who was seized with a fatal illness as a result of eating tinned sardines. Dr. Stevenson, official analyst to the Home Office, was able to separate an extremely minute quantity of an alkaloidal substance from the remainder of the tin of sardines, which caused the death of a white rat four and a half hours after its injection. The stomach and ejecta of the deceased man also yielded similar toxic substances. The circumstances of this case, and the extreme rapidity of its fatal issue (less than four hours), recall the sad death of Dr. Leonard Wooldridge a few years ago. In this case the poisonous agent was almost certainly contained in a fish sandwich, and the symptoms bore a very strong resemblance to those shown by Dr. Stevenson's case. It seems that especial care is required in the selection of fish for preservation.

A paper was also read before the Society by Edmund Owen, F.R.C.S., on the radical treatment of severe talipes equino-varus in children. He suggests that the orthodox treatment, by subcutaneous section of the tibial tendons and of the plantar fascia, leaves much to be desired. Though subcutaneous surgery has without doubt played a useful part, it is at the present day more or less of an anachronism. In the treatment of reducible inguinal hernia it has been entirely superseded, and greatly to the advantage of ruptured people. Subcutaneous operations are, however, still the rule with orthopædic surgeons. The author suggests, however, that apart from the uncertainty as to what structures are actually divided in such operations, the resistance of the skin in a severe case of congenital club-foot is an important item. The operation recommended by him, instead of the old proceeding, is that which was first introduced by Dr. A. M. Phelps, of New York. It consists in dividing every resisting structure which is encountered in a free vertical incision passing from the dorsum of the foot into the depths of the sole over the head of the astragalus, the tendo Achillis having been first divided. The improved position of the foot is thus obtained by lengthening the inner border of the foot rather than by shortening the outer border, as is usually accomplished in tarsectomy. It consists in inserting a broad wedge of space into the astragalo-scaphoid joint. This space is duly filled up by granulation tissue, which eventually becomes converted into a strong and trustworthy cicatricial band between the anterior and posterior segments of the foot.

The author is highly satisfied with this "open" method of treatment, which he has now adopted for several years. Further, he hears from Dr. Phelps that he (Dr. Phelps) has done the operation altogether two hundred times, with no fatal result, and with but a very small proportion of relapses.

T. J. Bokenham.

BEEF-MEAL IN THE TREATMENT OF THE INSANE.

In the Clinic of the Municipal Insane Asylum of Breslau, Wernicke and Kemmler have employed beef-meal for the artificial feeding of the insane who refused ordinary nourishment. Where patients are very anæmic and need nitrogenous food, it has been found preferable to the employment of cocoa with eggs or sugar, or other forms of food ordinarily given under such circumstances.

Wernicke has found that it is best to add the beef-meal to thick porridge, or a gruel of oatmeal, which has been rendered appetizing with salt or milk or beef extract. One or two eggs may be stirred with this, and from 1000 to 1500 cubic centimetres of the mixture is prepared in which is placed about three teaspoonfuls of beef-meal. This is readily given by the tube two or three times daily. In cases in which the patient dislikes meat foods, beef-meal can be well disguised by adding to it a sweetened mixture of cocoa or flour. It was also found that by the use of beef-meal a varied diet, so necessary to the preservation of the vital functions, could be readily administered, and Wernicke concludes that it is preferable to the meals which are put upon the market for the nourishment of infants.

A POWDER FOR HYPERIDROSIS.

℞ Washed sulphur, gr. xxx;
Powdered arrowroot, ℥iv;
Salicylic acid, gr. vii.

This powder is to be dusted over the feet and between the toes, for the relief of hyperidrosis.—*L' Union Médicale*, November 12, 1892.